DCI

Drug and Cosmetic Industry

JANUARY 1955

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601 West 26th Street, New York 1, N. Y.

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Why you should use ROCHE DRY vitamin A acetate

1 *HIGH STABILITY* –Tests of Roche Vitamin A acetate powder alone and in combination with Roche vitamin D_2 powder and other dry vitamins, minerals, fillers, lubricants and flavors, under manufacturing conditions show that Roche dry vitamin A has excellent stability in tablets, in gelatin capsules, and in powdered products. Other tests of Roche vitamin A and vitamin D_2 powders stored in open containers under accelerated aging prove that these products have an extraordinarily high potency retention.

2 *LIGHT COLOR . . . FREE FLOWING.* Roche dry vitamin A is a light yellow color. It is produced as spherical granules having an irregular surface. It flows freely. The granules contain finely dispersed vitamin A acetate of high purity in a starch-coated protective matrix. It is practically odorless and tasteless.

Prove it yourself, get the ROCHE demonstration kit

Prove to yourself the excellent color and uniform particle size of Roche dry vitamin A acetate with this simple demonstration. Kit also contains abridged version of the new Roche dry vitamin A technical brochure to give you quick facts about the product. We shall be glad to send you one of these free kits at your request. Or ask your Roche salesman. There's no obligation, of course.

3 *VARIOUS POTENCIES and COMBINATIONS.* Roche dry vitamin A acetate alone, or in combination with Roche dry vitamin D_2, will give you easier manufacturing of dry preparations: tablets, capsules, vitamin-fortified powdered supplements. See the table below for the many potencies and mesh sizes which Roche has to help you.

ROCHE DRY Vitamin A acetate			ROCHE DRY vitamin A acetate and vitamin D_2 COMBINATIONS			ROCHE DRY Vitamin D_2		
Type	Potency (in U.S.P. units per gram)	Mesh Sizes	Type	Potency (in U.S.P. units per gram)	Mesh Sizes	Type	Potency (in U.S.P. units per gram)	Mesh Sizes
Type 325	325,000	40, 60 and 80	Type 325A-32.5D	A –325,000 D_2– 32,500	40 and 60	Type 850	850,000	40 and 60
Type 500	500,000	40, 60 and 80						
Type 250*	250,000	40, 60 and 80	Type 500A-50D	A –500,000 D_2– 50,000	40 and 60			

*Small inventories usually available

4 *UNIFORM PRODUCT.* The many years of experience which Roche has in vitamin research and manufacturing insure the production of dry vitamin A which is uniform in potency, color and particle size. Special handling is unnecessary.

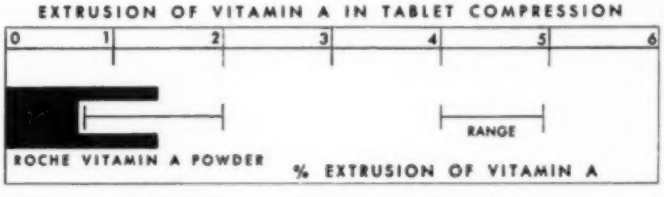
5 *CONVENIENCE.* With its free-flowing character, easy combination with other dry ingredients, and starch-coated, irregular particle surface to prevent separation during mixing and sticking in tabletting machine dies, Roche dry vitamin A is ideally suited for preparing tablets, capsules and dry formulations.

6 *NO FISHY TASTE* . . . no fishy "burp" or after-taste will *ever* occur in any of your products made with Roche dry vitamin A.

7 *PACKAGING.* All types of Roche dry vitamin A acetate and Roche dry vitamins A and D_2 combinations are packed in polyethylene bags in fibre drums or 2-kilo Tamperpruf metal containers–to insure safe delivery, easy handling and storage.

8 *LOW PROCESSING LOSS.* Roche dry vitamin A has excellent resistance to the high pressures found during tabletting. Thus you may make tablets virtually without loss of vitamin A potency during processing. The table (below) shows the extremely small percent of vitamin A loss due to extrusion.

EXTRUSION OF VITAMIN A IN TABLET COMPRESSION



9 *BIOLOGICAL AVAILABILITY.* Laboratory tests by rat liver storage assay and by U.S.P. rat curative growth assay show that Roche dry vitamin A acetate and dry vitamin D_2 have complete biological availability in the test animals.

10 *SAMPLES* are yours on request. Just ask your Roche salesman or write the Vitamin Division.

New Technical Brochure · Ready Now · FREE

A complete spiral-bound technical brochure on Roche dry vitamin A acetate is now being distributed. Containing 36 pages, illustrated with data about biological availability, particle sizes, physical properties, analytical methods, assays and extrusion tests, this brochure can give you much help. Be sure to get your personal copy now. Just ask your Roche salesman or write the Vitamin Division. It's free, of course.

Call **ROCHE** for Vitamins

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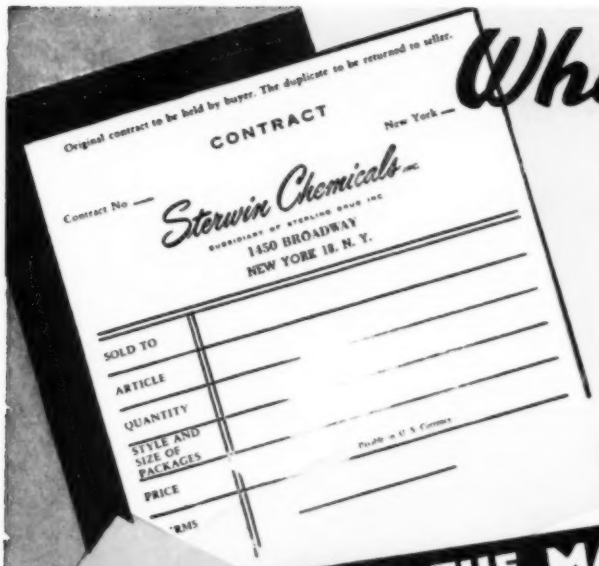

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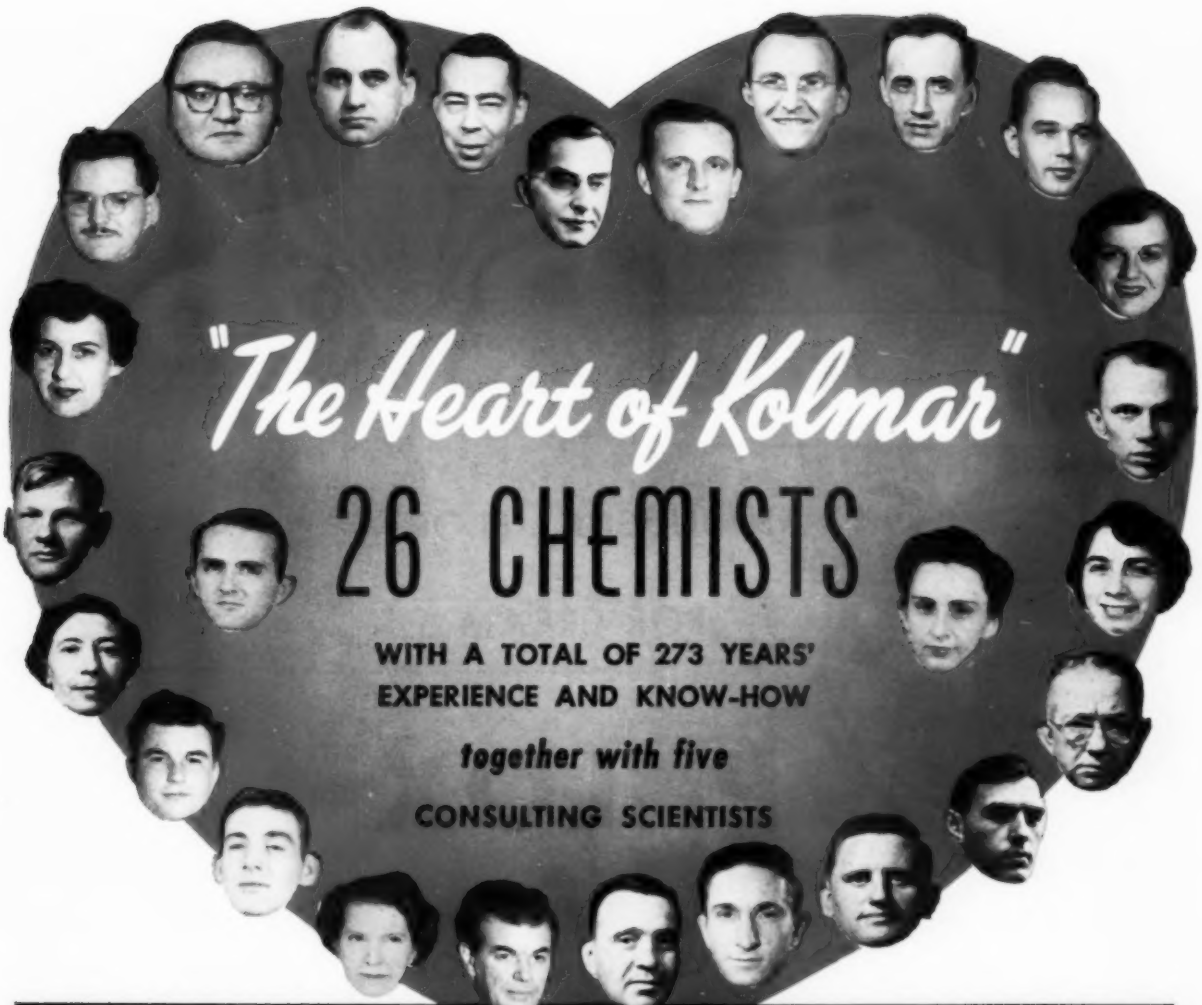
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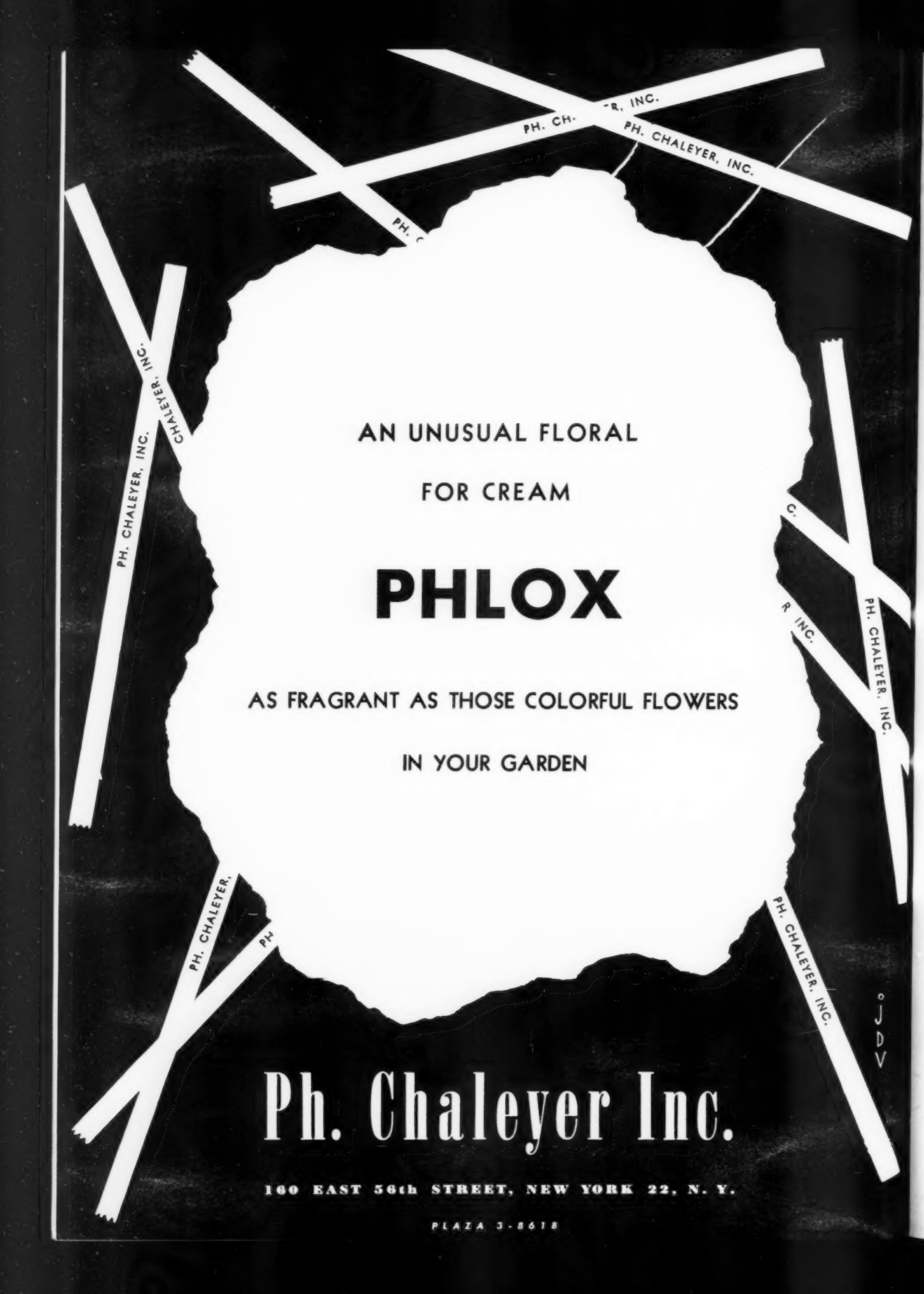
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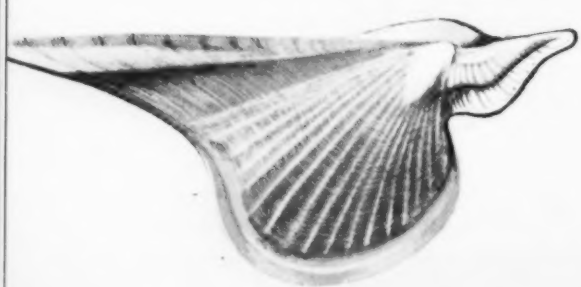

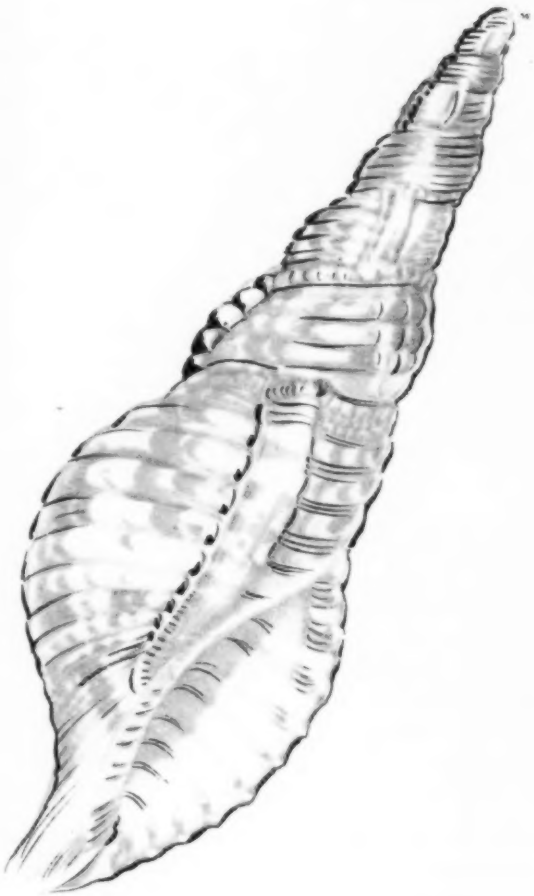

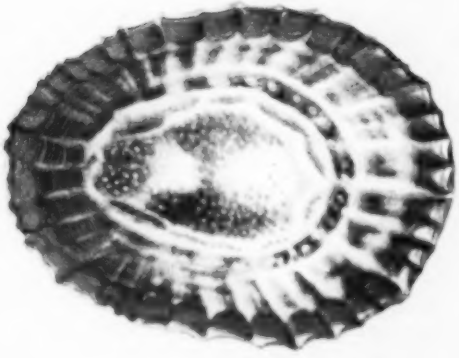

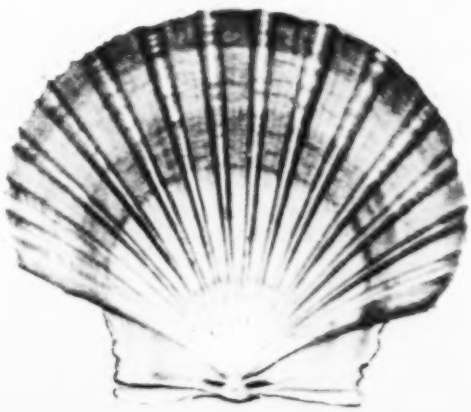

spotlight on

color stability

in stearic acid

how Emersol 132 Lily gave lighter-colored esters for cosmetics and toiletries

If your manufacturing process involves prolonged heating or exposure to high temperatures, then this actual experience may help solve your problems: *Case History No. 12-41 . . . Because of the higher purity associated with lighter-colored products, this well-known manufacturer of esters was approached for lighter-colored monostearates for use in cosmetics, toiletries, and similar type products. Since esters are exposed to high temperatures during manufacturing, this producer's logical approach was to investigate the color stability of his ingredients. On checking various stearic acids, he found that the outstanding color stability of Emersol 132 Lily gave him exceptionally light-colored monostearates, far better than those from all others tested. And since Emersol 132 costs no more than competitive triple-pressed grades, this extra "sales-appeal" cost him nothing.*

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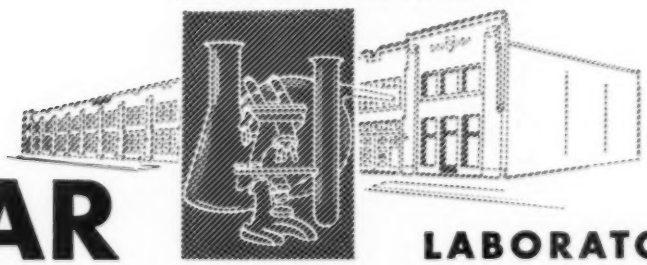

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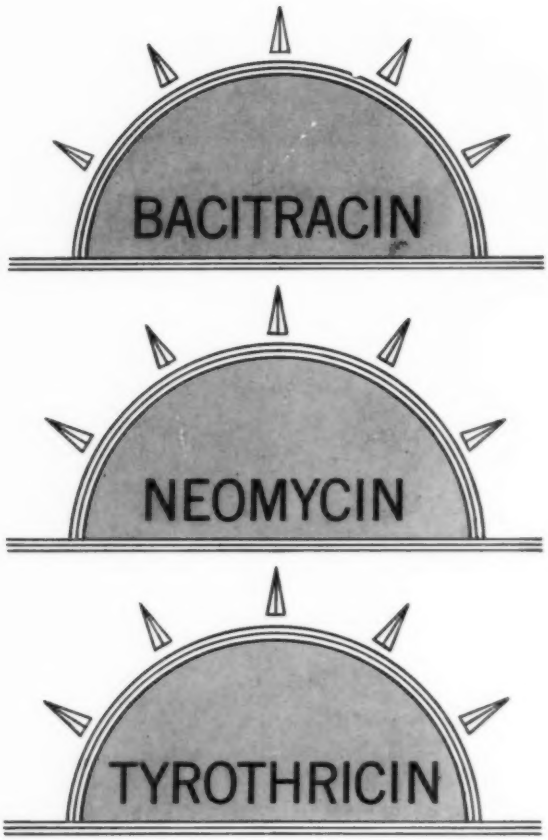

New Uses Every New Day

The *specialty antibiotics*, bacitracin, neomycin, tyrothricin, are gaining further well deserved acceptability in external preparations for skin conditions.

In a recent report on pyogenic skin infections, Pillsbury and Kligman mention the avoidance of topical application of compounds which might be required later for the treatment of certain systemic infections, and state they find bacitracin and neomycin reasonably safe, with a wide spectrum of antibacterial effect.[1] Since bacitracin and neomycin singly and in combination are effective against gram-negative and gram-positive organisms, the results compare favorably with other antibiotics used locally. No sensitization or primary irritation has occurred from their usage.[2]

1. Pillsbury and Kligman, Correspondence, British Medical Journal, March 20, 1954. Page 706.
2. J. M. Greenhouse and W. C. Ryle, A.M.A. Archives of Dermatology and Syphilology. 69:366-67, March, 1954.

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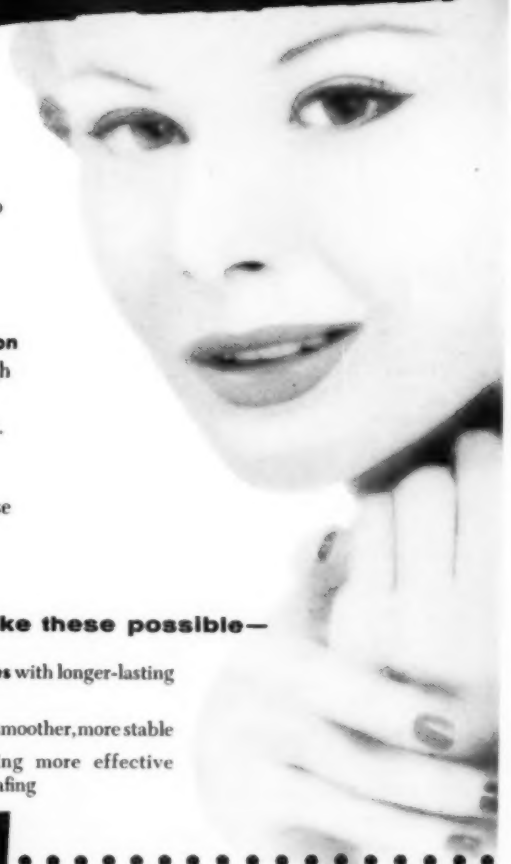

Opportunities to add important new sales features to cosmetic products are opening up through a new General Electric silicone development—G-E Velvasil silicones.

These new fluids offer cosmetic manufacturers a chance to build-in new product benefits or to make profitable new products through the amazing properties of silicones.

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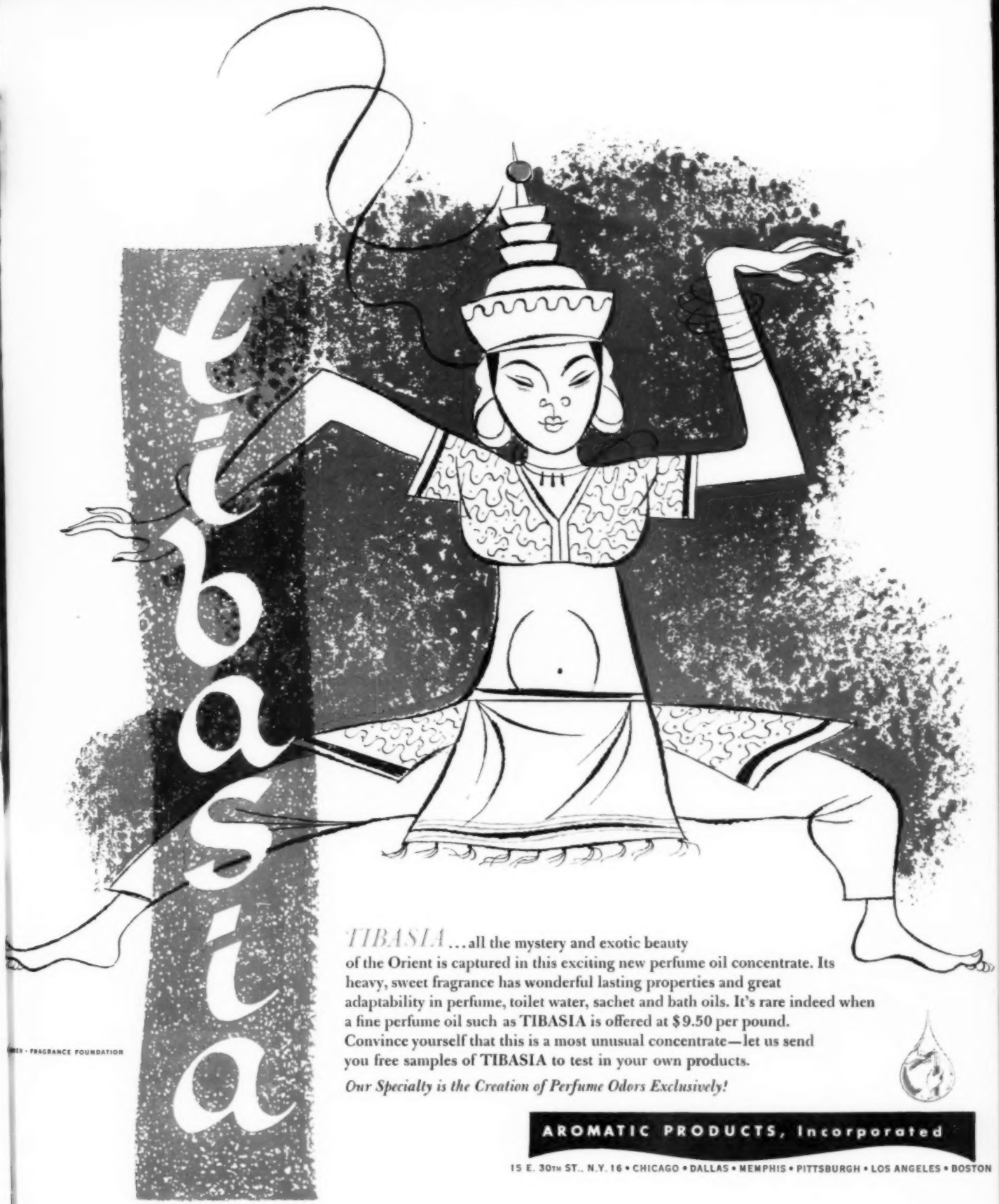

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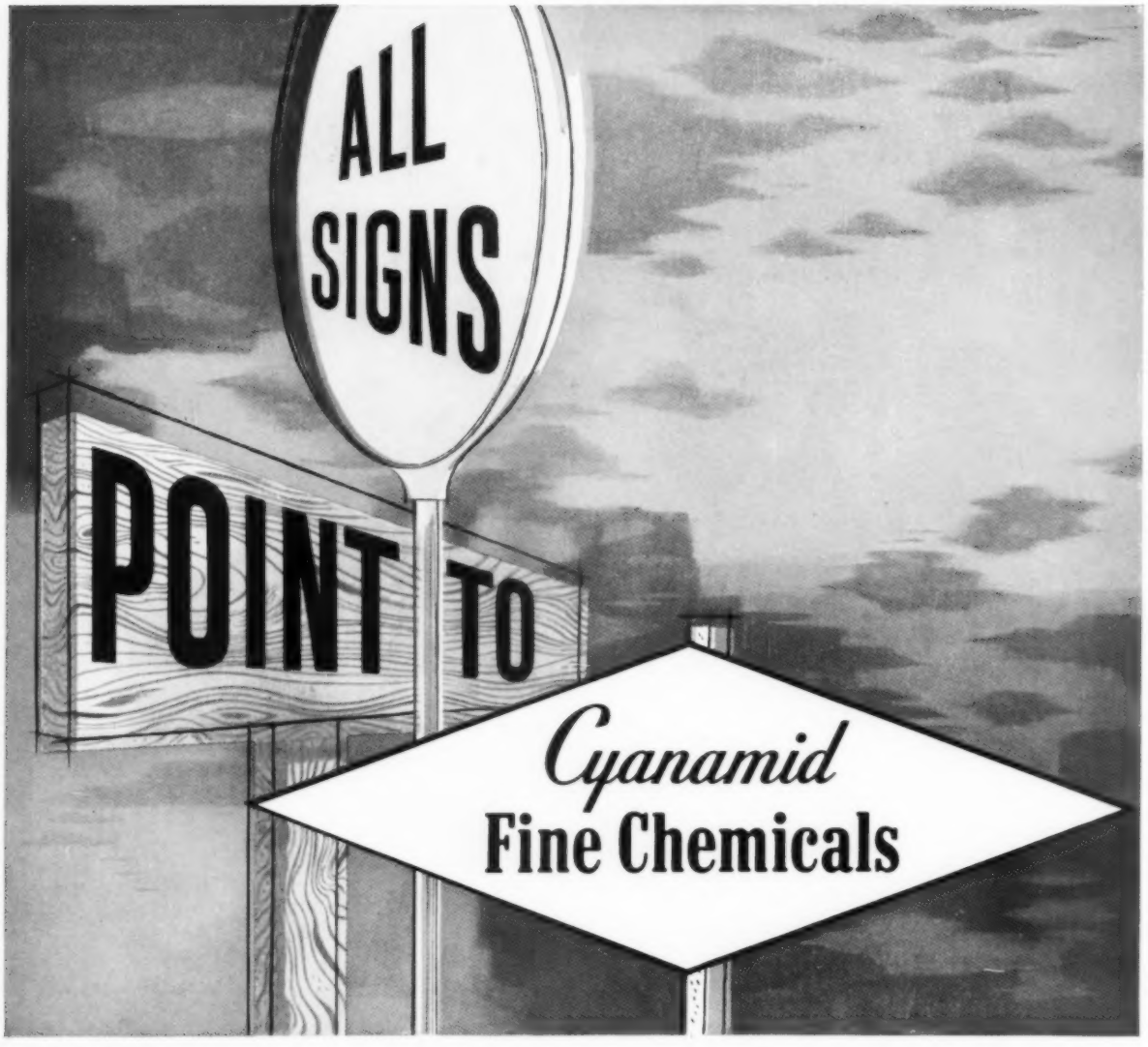

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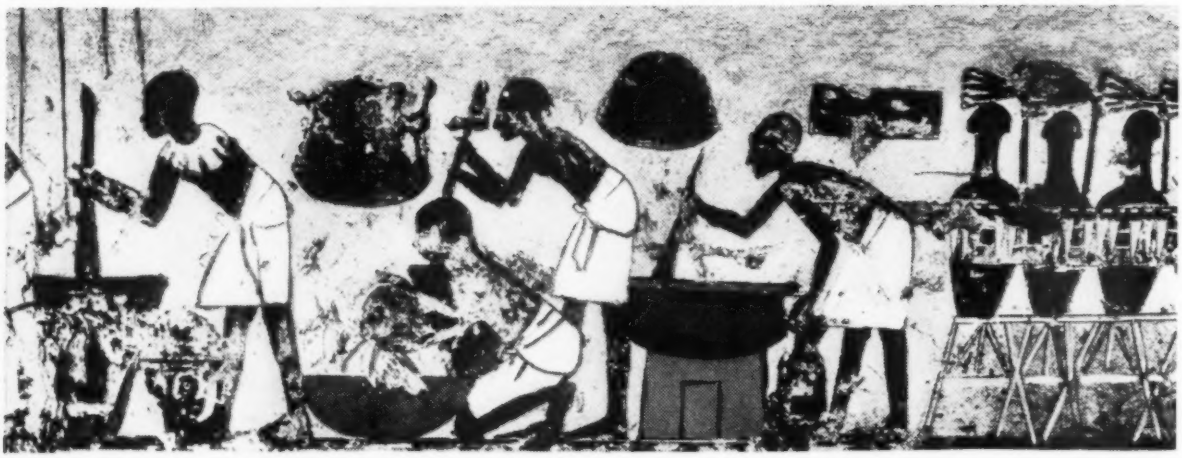

Egyptians preparing ointments. Courtesy J. B. Lippincott Co.

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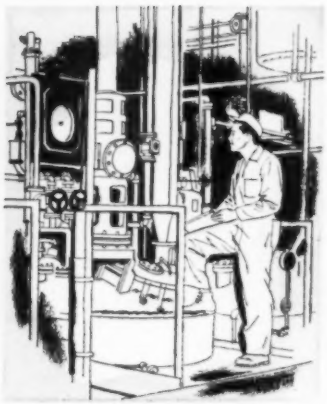

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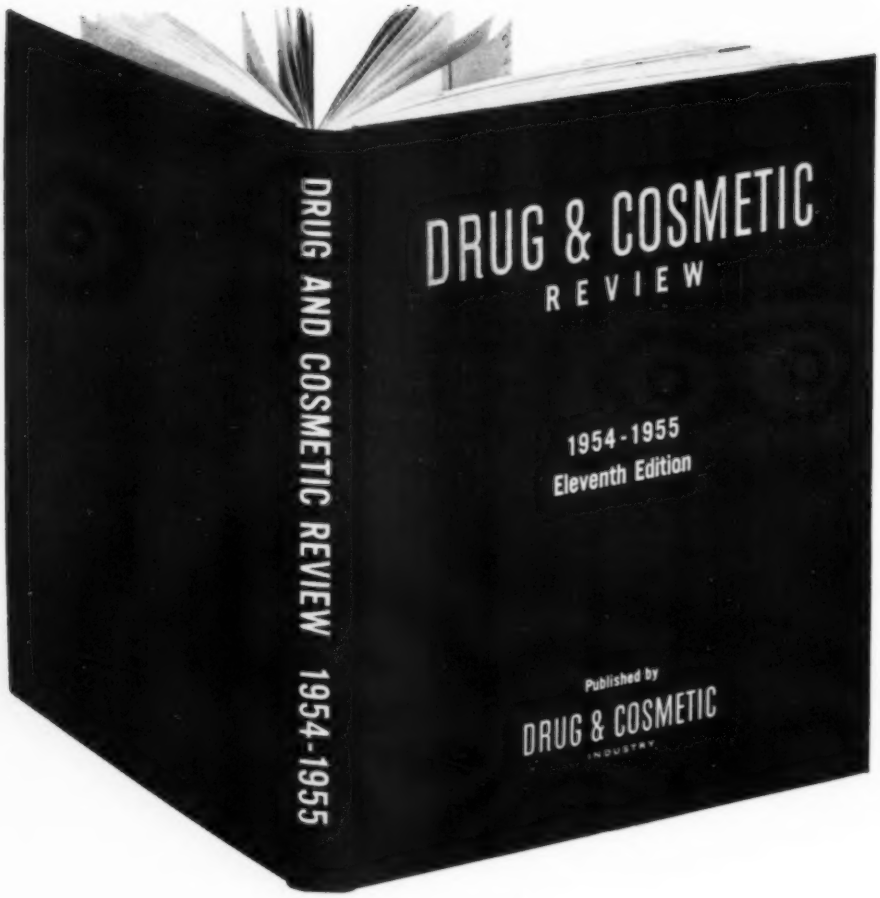

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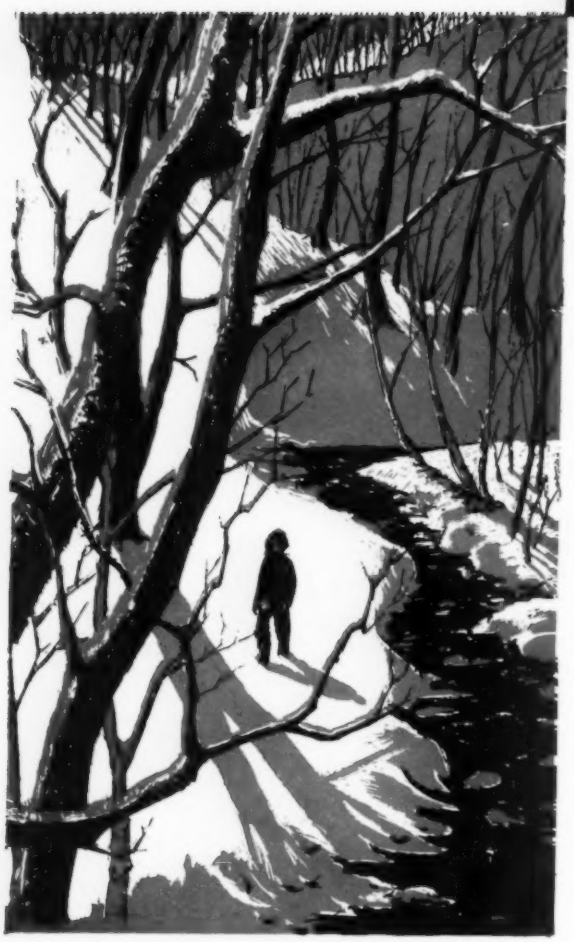

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Keeping Posted

Fair Trade Future Dark

The future of fair trade does not look bright, according to speakers who addressed the National Drug Trade Conference in Washington early last month. Ray Cutler, counsel for Eli Lilly and Company, predicted that fair trade might not be with us within five years. He sees great danger to fair trade at the state level. Present state legislators in large numbers, are not sold on fair trade. He told of spending a great deal of time with a legislator from his home state of Indiana and thus far having failed to sell the fair trade idea to him. He spoke of the editorials appearing in the Wall Street Journal and other papers opposing the fair trade idea. Mr. Cutler said that public interest in pricing of consumer goods is gaining, and people consider the purchase of goods at lower prices at discount houses as an achievement. They think that if there were no fair trade, they could do this all the time.

George Chapman, of Rogers, Hoge & Hill, said that fair trade is in a great transition, not only from the legal point of view, but also from the point of view of application. He said that trading stamps present a problem without an answer. He described a supermarket in which drug and cosmetic items are sold. When the customer comes to the check-out, the clerk arrives at the total of the purchases and then gives trading stamps for the full amount. He said they would be fearful of bringing a suit to force such a store not to give trading stamps for the drug or cosmetic items included in the transaction. In connection with this he pointed out that three or four states have ruled that the giving of trading stamps is not a violation of fair trade.

It was pointed out that trading stamps represent a discount of two per cent, and that when competition becomes keen, the amount of trading stamps is often increased so that the price-cutting can rise to any percentage by this method. Twenty states were said to have prohibited trading stamps in their fair trade laws. With reference to discount houses, it was said that they carry about only thirty or forty products. Also, as manufacturers enforce fair trade on their products, the discount houses move into another line of goods. Recently they became very active in toys.

N. Y. C. Yields on Antibiotics

After resisting for five years, the New York City Board of Health on December 9, 1954, finally yielded and adopted a resolution amending Section 118(a) of the Sanitary Code, which heretofore with minor exceptions prohibited the sale of all antibiotic drug products in New York City except on prescription.

The campaign for removing the restrictive provisions of the Sanitary Code, and bringing New York City regulation of antibiotic distribution into conformity with that approved by the Federal Food and Drug Administration, was inititiated five years ago by the Drug, Chemical, and Allied Trades Section of the New York Board of Trade and was spearheaded by its Counsel, James G. Flanagan of S. B. Penick & Company, as part of the Section's program to promote unification of laws and regulations affecting this industry. The American Drug Manufacturers Association, the American Pharmaceutical Manufacturers Association, the New York State Pharmaceutical Association, the Pharmaceutical Council of Greater New York, and the Proprietary Association joined in support of the Section's petition and brief.

New York City now allows sale over the counter of:

1. Tyrothricin, streptomycin, bacitracin or polymixin for topical application to the human skin.
2. Tyrothricin, polymixin, or gramicidin when used in a solution for application to the mucous membranes of the nose and throat.
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4. Bacitracin, tyrothricin, gramicidin, neomycin or polymixin troches.
5. All veterinary antibiotic preparations, except bacitracin for injections.

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G-11 remains on the skin, even from soaps which are thoroughly rinsed off with water. Thus the deodorant action persists for days. Persons who have used deodorants with G-11 for three and four years show no immunity to their action.

Over seventy scientific articles, mostly by independent researchers, have been published over the last ten years attesting to the antibacterial and deodorant performance of G-11.

In addition, G-11 is not perceptible while on the skin, has no harmful effect on clothing, is compatible with perfumes, is readily soluble in soaps and cosmetic formulations, and is non-staining and non-irritating.

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Commissioner Larrick and the FDA

The Division of Medicine of the Food and Drug Administration is under-staffed, Food and Drug Commissioner George P. Larrick told the American Pharmaceutical Manufacturers Association meeting. He also pointed out that with an inspection staff of below 200, it will take ten years to make just one visit to each of the 96,000 establishments which do a substantial interstate business in foods, drugs, and cosmetics, not including any retail establishments. Last year about 10,000 plants were inspected.

As an illustration of the kind of new problems facing the FDA, Mr. Larrick spoke of the recent action taken to permit the use of synthetic hormones in animal feeds. New-drug applications have been made effective based on controlled experiments showing that when properly used there will be no residues of these highly potent drugs remaining in the meat when it reaches the consumer. Thus while there is no question in FDA minds about the adequacy of the research on safety, another industry is added which for a time at least should have close surveillance. Concluded Commissioner Larrick: "The most important item of our unfinished business, in my opinion, is this whole question of the adequacy of the Food and Drug Administration to do a 1955 job with a 1940 staff. It simply cannot be done, and we have reached a point where there are adverse effects on the food and drug industry as well as from the standpoint of consumers. This, of course, raises many other questions. What level of inspection is desirable? What programs should receive greater emphasis? What work can be left to the States? To help us answer these questions and others, Secretary Hobby will shortly announce the membership of a distinguished committee of citizens who will survey the entire operation of the Food and Drug Administration and make recommendations of public policy. The committee will include among its members representatives of the food, drug, and cosmetic industries as well as outstanding citizens from other walks of life. We sincerely hope that this committee will be able to point the way toward a real improvement in our service to the American people."

Revlon FTC Appeal Rejected

Revlon was turned down by the Federal Trade Commission in its effort to have the Commission reopen the case which was decided against Revlon. Revlon wanted the Commission to receive further evidence or hear the case reargued. In its appeal Revlon maintained that newly discovered evidence would show that its exclusive-dealing contracts do not have a substantial probability of lessening competition. Revlon pointed to the tremendous growth of Hazel Bishop, Inc., a major competitor, pointing out that Hazel Bishop, with no sales in 1949, now has annual sales of $9.8 million annually. This, Revlon argued, shows its own exclusive dealings do not foreclose competitors from the market. The answer to this argument given in the Commission's opinion written by Commissioners John W. Gwynne, was:

"It is clear that (Revlon's) exclusive dealing agreements did not have the power to stop Hazel Bishop, Inc., from emerging as one of the leaders in the lipstick field and from making inroads into the nail enamel field. However, this is far different from finding that these exclusive dealing agreements . . . do not have a substantial restrictive effect on smaller competitors. . . . The Clayton Act is concerned with helping small business. The fact . . . a company with a large advertising budget and an equally strong jobber organization is not foreclosed from the market, does not remove the fact that smaller companies are denied access to a substantial part of the beauty supply jobber market by (Revlon's) agreements. As to the smaller cosmetic companies, (Revlon's) exclusive dealing contracts still have the requisite likelihood of adversely . . . effecting their power to compete."

N. J. and Drug Store Open Display

The matter of open display for drug items in drug stores with or without the check-out system is apparently behind the action recently taken by the New Jersey State Board of Pharmacy. On September 2, 1954, the Board promulgated the following regulation: "Drugs, medicines and poisons, the sale of which is restricted to the immediate personal supervision of a registered pharmacist in a licensed pharmacy or drug store, may not be displayed in the pharmacy or drug store in such a manner that they can be picked up by a customer when standing in an area allocated for customer use."

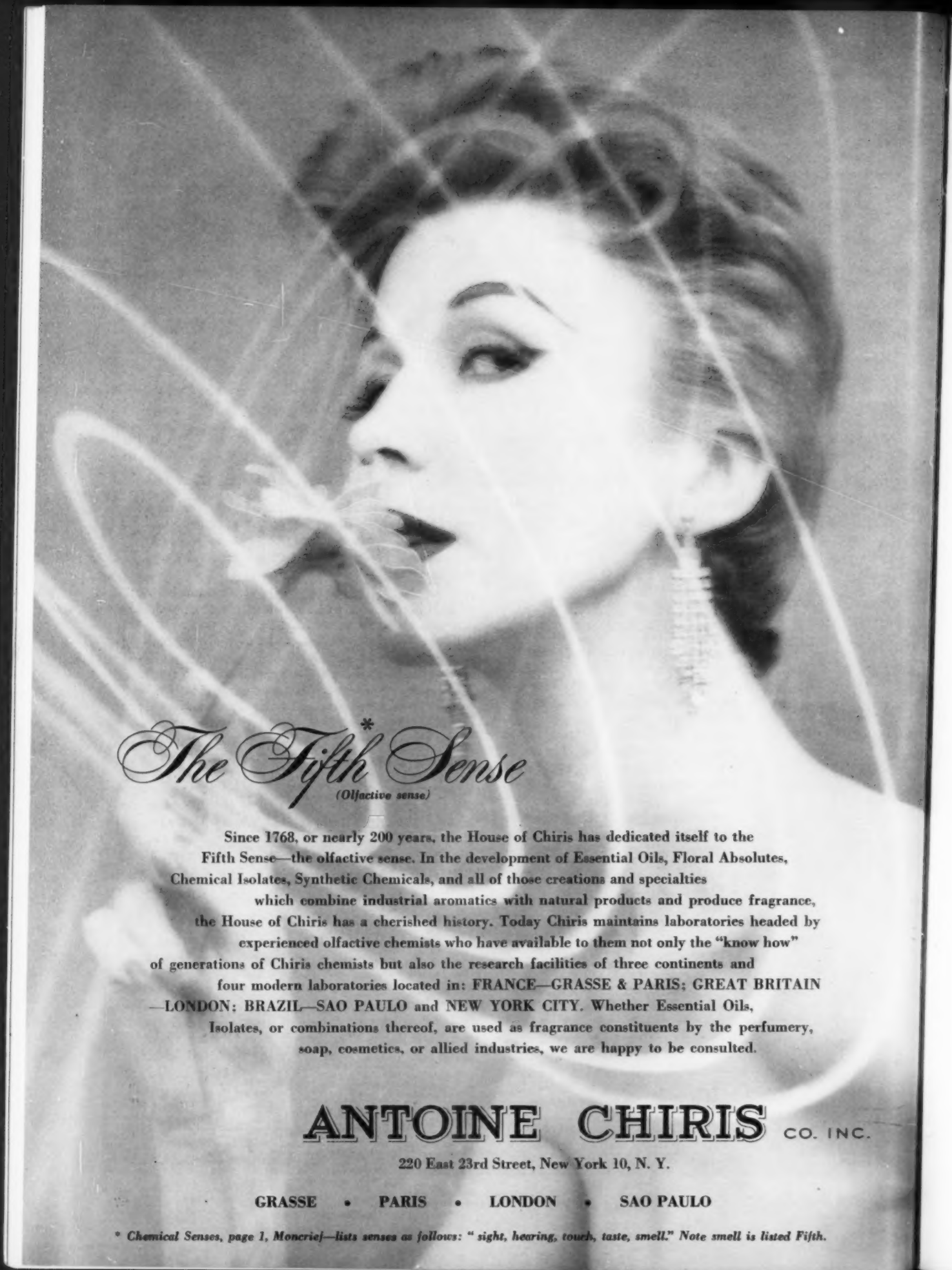
More recently, the Board sent pharmacies in the State a list of items which may not be openly displayed. The communication from the Board said in part:

"It is to be emphasized that this list is intended only as a guide and is not intended to be a complete list. In fact the Board is of the opinion that no packaged medicine of any nature whatsoever should be displayed so that it can be picked up by the customer, and a professional service should be rendered by the pharmacist in the sale of any drug, medicine or poison. It is to be emphasized that it is not sufficient to remove these items which are restricted from open display, but their sales must be personally supervised by a registered pharmacist as required by the provisions of the Pharmacy Act of this State. This means that when an unregistered clerk makes a sale of a restricted item, the sale must be specifically brought to the attention of a New Jersey registered pharmacist so that he can note the item being sold and observe the person to whom the sale is being made."

The Board said further:

"In studying the recent Supreme Court decision in the case of the Proprietary Association v. our Board, it is the Board's considered opinion that the promulgation of this regulation was mandatory upon the part of the Board to show good faith in the enforcement of the law and to assure a degree of supervision in the sale of restricted items. The Board is prohibiting visual displays but, if restricted items are displayed in bins or compartments on a counter or on shelving available to the customer, glass covers or doors must be installed so that the customer cannot pick up a restricted item.

"It is impossible in a notice of this kind to describe the professional service which chould be rendered by a pharmacist but it is incumbent upon the pharmacist to



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(Olfactive sense)

Since 1768, or nearly 200 years, the House of Chiris has dedicated itself to the Fifth Sense—the olfactive sense. In the development of Essential Oils, Floral Absolutes, Chemical Isolates, Synthetic Chemicals, and all of those creations and specialties which combine industrial aromatics with natural products and produce fragrance, the House of Chiris has a cherished history. Today Chiris maintains laboratories headed by experienced olfactive chemists who have available to them not only the "know how" of generations of Chiris chemists but also the research facilities of three continents and four modern laboratories located in: FRANCE—GRASSE & PARIS; GREAT BRITAIN —LONDON; BRAZIL—SAO PAULO and NEW YORK CITY. Whether Essential Oils, Isolates, or combinations thereof, are used as fragrance constituents by the perfumery, soap, cosmetics, or allied industries, we are happy to be consulted.

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** Chemical Senses, page 1, Moncrief—lists senses as follows: " sight, hearing, touch, taste, smell." Note smell is listed Fifth.*

make certain that a customer will not misuse a drug and knows the dangers from careless storage or misuse. For example, a customer purchasing children's aspirin should be warned that it should be kept out of reach of children, as many poisonings have resulted from small children playing 'doctor' in the home. Corn remedies containing salicylic acid or a cough syrup containing sugar should not be sold to a diabetic without proper warning. There are many other ways in which you can protect the public, and it is up to you to render the service which is intended by the law and for which you have been trained."

S. C. C. Award to Poucher

William A. Poucher, renowned British perfumer, cosmetic chemist, photographer, and author, was tendered the Medal Award of the Society of Cosmetic Chemists at the dinner held following the Society's Winter meeting on December 9, at the Hotel Biltmore, New York. Pierre Bouilette, of Givaudan-Delawanna, spoke on William A. Poucher, The Pioneer, and H. Gregory Thomas, president of Chanel, Inc., spoke on William A. Poucher, The Man. Due to the illness of Retiring President Donald H. Powers of Warner-Hudnut, the presentation was made by the incoming president, Kenneth A. Russell, of Colgate-Palmolive Company. After expressing his gratitude for being granted the award, Mr. Poucher delivered a paper entitled Ventures into Fragrance.

Mr. Poucher made a quick trip from England and back for the occasion. He left England on Tuesday, December 7, flying by the North Pole route to this country. He received the award on Thursday evening, December 9, and left by plant over the Pole on Friday, December 10. Also, while here, he appeared on television at 7 A.M. with Dave Garroway in the Today program.

Drug Trade Conference Action

The annual meeting of the National Drug Trade Conference, held last December 3 in Washington, devoted most of its time discussing a report by Dr. Hugo H. Schaefer on the operation of the conference and its program.

Resolutions implementing many of the points brought up in Dr. Schaefer's report were adopted as follows:

1. That constituent members of the Conference select as delegates to the annual meeting active and influential members of their organizations and preferably those who are, or have been, active as officers of the associations on a policy-making level.

2. That the Conference give consideration to discussion of important current problems of the drug industry and the profession of pharmacy, even though such matters may at the time be considered controversial. And even though the vote for approval of any question coming before the Conference must be unanimous, this fact should not preclude a complete presentation of factual data or reference for discussion and reports, to the end that members of the Conference and the drug industry, and the profession in general, may become acquainted with the views of constituent organizations, and with the possibilities for obtaining an expression of the consensus of the Conference.

3. That the best interests of the Conference will be served by rotation of the office of president and vice-president among the representatives of its constituent bodies in such manner as to assure a succession of presidents representing each of the constituent organizations in turn.

4. That the activities of the Conference committees occurring between annual meetings and which have not been acted upon by the Conference be kept in confidence by the members of such committees and not be subject to press releases.

The Conference elected as president Dr. Frederick J. Cullen, executive vice-president of the Proprietary Association; as vice-president, Harold C. Kinner, of the National Association of Boards of Pharmacy; and as secretary-treasurer, Ray C. Schlotterer, executive vice-president of the Federal Wholesale Druggists Association.

Antibiotic Picture

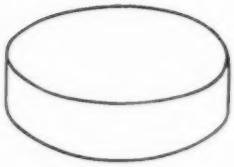
Broad-spectrum antibiotics, chlortetracycline (Aureomycin), oxytetracycline (Terramycin), tetracycline, and chloramphenicol (Chloromycetin), accounted for $137 million of the $262 million worth of antibiotics produced in 1953, Dr. Henry Welch, Director of Antibiotics of the Food and Drug Administration stated recently. Since Parke, Davis & Company revealed in their financial statement for 1953 that sales of chloromycetin totaled $25,904,017 for that year, sales of the other three products for 1953 totaled $111 million. This is to be divided between Lederle and Pfizer, the makers of Aureomycin and Terramycin, respectively, and the only ones who produced any tetracycline during that year. An additional $19 million worth of the broad-spectrum antibiotics went into animal feed supplements, while penicillin production totaled $58 million, and streptomycin and dihydrostreptomycin totaled $35 million. These figures are at manufacturers' levels.

"Upwards of 3,500 antibiotic substances have been isolated and studied since 1942 and although the great majority have not been found useful because of low potency or high toxicity, an average of one each year has proven of value therapeutically," he said.

"I think it may safely be said that the antibiotic preparations are used as prescription drugs in more serious and crippling diseases than any other drug or class of drugs now available," Dr. Welch declared. "It has been estimated that in dollars spent for prescription drugs in recent years, conservatively 40 per cent of all prescriptions written include one or more antibiotics."

Milwaukee Substitutors on Probation

The Wisconsin State Board of Pharmacy early last month placed eight Milwaukee druggists on probation for two years for substituting capsules other than Nembutal in the filling of prescriptions calling for that product of Abbott Laboratories. Acting on the complaint of Abbott who presented evidence which was not contested by the accused druggists, the Board first ordered the licenses of the eight, suspended for two



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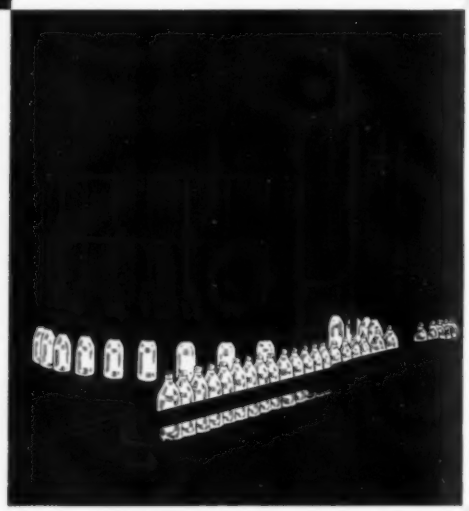

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years, but then modified the order provided the druggists comply with all state and federal pharmacy regulations. These were the first cases of this kind to come before the Wisconsin Board for disciplinary action.

31 Oldest Drug Houses

In our December, 1949, issue we published a list of the "eight oldest drug houses" which had appeared in the Reed & Carnrick Quarterly. Upon publication of this list we were informed of other houses that belonged in it. We arbitrarily decided to end the list with Eli Lilly, which was the last house to be named in the original one, and thus the last year appearing on the list is 1876.

Lately we have had a number of inquiries regarding this list which eventually grew to 31 houses. We were surprised to find that the last time we published it was in December, 1952, at which time we added the Valentine Company to make the total 31.

Because of the interest in this list we are now republishing it.

Caswell-Massey Co. Ltd.	1752
Schieffelin & Company	1781
Lanman & Kemp-Barclay & Co.	1808
The Tilden Company	1824
S.S.S. Company	1826
The Wm. S. Merrell Company	1828
McKesson & Robbins	1833
Strong Cobb & Co.	1833
Boericke & Tafel	1835
Otis Clapp & Son	1840
Smith, Kline & French	1841
Carroll Dunham Smith Pharmacal Co.	1844
Sharp & Dohme	1845
Solon Palmer	1847
E. R. Squibb & Sons	1848
Chicago Pharmacal Company	1855
Hance Bros. & White Co.	1855
William R. Warner & Co.	1856
Reed & Carnrick	1860
Wyeth, Inc.	1860
The Burrough Bros. Mfg. Co.	1863
Buffington's	1865
Parke, Davis & Company	1866
Borcherdt Malt Extract Company	1868
Lloyd Brothers, Inc.	1870
Valentine Company	1871
Henry K. Wampole & Co.	1872
Chilcott Laboratories	1875
Lydia E. Pinkham Medicine Company	1875
The Arlington Chemical Company	1876
Eli Lilly & Company	1876

Charles Antell FTC Order Modified

The Federal Trade Commission has modified its order concerning advertising claims made for Charles Antell Formula No. 9. Under the modified order it may be claimed that the product will remedy the damage caused to hair by improper dyeing, permanents, burning, or other harmful practices. The modified order prohibits representing that the product will remedy the cause of cracked or split hair. The new order also prohibits representation that from a percentage standpoint the main ingredient is lanolin. The original order contained a broader prohibition against this claim.

Robinson-Patman Amendment

Amendment of the Robinson-Patman Act is being introduced in the new Congress by Senator Estes Kefauver and Representative Wright Patman. The Kefauver-Patman amendment, referred to as the Equality of Opportunity Bill, is designed to plug the loophole furnished by claiming prices were cut to meet competition. The amendment furnishes new language which reads:

Provided, however, *That unless the effect of the discrimination may be substantially to lessen competition or tend to create a monopoly in any line of commerce it shall be a complete defense for a seller to show* that his lower price or the furnishing of services or facilities to any purchaser or purchasers was made *in good faith* to meet an equally low price of a competitor, or the services or facilities furnished by a competitor.

The italicized words are new and replace the following words of the present law:

"That nothing herein contained shall prevent a seller from rebutting the prima facie case thus made by showing . . ."

Dargavel Foundation Contributions

Contributions totaling $125,000, representing half of the capital fund sought for the John W. Dargavel Foundation, had been received by December 8, according to an announcement made on that date by Albert C. Fritz, chairman of the Foundation Committee. The Foundation cannot legally begin to operate until the entire $250,000 is subscribed. Indications are that the $100,000 quota for retailers will be oversubscribed, since four of twelve state committees—Minnesota, Washington, Indiana, and Kentucky—have among them raised $40,000, of which $17,000 came from Minnesota alone. The remaining $150,000 is being sought from manufacturers and wholesalers.

Antibiotics—A Bargain at Any Price

"For the patient, antibiotics are a bargain at any price," John L. Bach, director of press relations for the American Medical Association, told a year-end meeting of 125 key executives of Parke, Davis & Company last month. "Five dollars' worth of penicillin can eliminate the need for a $150 mastoid operation and $200 in hospital bills," he said.

"When the old family doctor called to see patients with pneumonia, he was forced to sign 33 death certificates out of every 100 patients seen," he said. "In addition to the number of deaths caused by pneumonia in that day, there were incalculable man-hours lost by prolonged illness and convalescence, which that wonderful old family doctor was powerless to overcome. The cost of medical care for pneumonia patients was not only high, but the cost in lives and in man-hours lost in prolonged convalescence was tremendous indeed.

"The antibiotics changed this picture completely. Out of every one hundred pneuomnia cases seen by a doctor

today, he will sign not 33 but only one, or at the most, two, death certificates. The man-hours lost in convalescence have, for the most part, been largely eliminated."

Manufacturers and Business Censuses

Starting early this year, the Bureau of the Census, U. S. Department of Commerce, will conduct the Censuses of Business, Manufactures and Mineral Industries for the year 1954. The most recent Census of Manufactures previously taken was for the year 1947. The most recent Census of Business, which covers the distributive trades and services, was for the year 1948. And the last Census of Mineral Industries was for the year 1939. Thus the new censuses to be taken this year will replace and improve statistics which are now from seven to 15 years old.

Searle Protects Dramamine Mark

G. D. Searle & Co. recently obtained a permanent injunction in the U. S. District Court for the Southern District of California, Central Division, against the North American Research Products Corporation, Michael Ressler, and all officers, agents, and representatives, enjoining them from using the name, Dramagum, anywhere in the world in any way. They are enjoined from using the word, Dramamine, or any part thereof in combination with any word or part of a word as the name of any drug or medicinal chewing gum or other remedy for motion sickness. They are also enjoined from using any other counterfeit, copy, or colorable imitation of Dramamine.

More Medicine on TV

The latest company in this industry to employ television for bringing its name before the public is Ciba Pharmaceutical Products. Starting last month a weekly 15-minute program over 14 ABC stations on Sunday evenings, Ciba becomes the first ethical pharmaceutical company to present on open-circuit a network weekly series of this type. The program is called Lifeline and is presented with the cooperation of the American Medical Association. Narrator of Lifeline is none other than Dr. Louis H. Bauer, past president of the American Medical Association, Secretary-General of the World Medical Association, and Chairman of the United Medical Service. The program is a dramatic-documentary series designed for the physician and the interested layman audience.

This is the third program on television designed to bring authentic medical information to the public. The first of course was that of Smith, Kline & French which appears at intervals. The second is the Medic weekly series sponsored by the Dow Chemical Company. It is natural that television should give a portion of its time to the education of the layman in health problems, since public interest in this subject is extremely high today and still increasing in intensity. However, it is quite an innovation for a pharmaceutical manufacturer whose products are not advertised to the public to sponsor a regular series of weekly programs of this type. Incidentally, the National Association for Mental Health last month awarded citations to Smith, Kline & French Laboratories and the American Medical Association for their television presentation, Search for Sanity, on the March of Medicine program. The award-winning program, seen on the NBC television network on Sunday, October 31, marked the first network use of live television cameras in a hospital for the mentally ill.

Pharmaceutical Council Activities

The National Pharmaceutical Council reported on its activities at a meeting of its board of directors held last December 3 in New York. Robert A. Hardt, chairman of the Public Relations Committee reported on the contemplated distribution of a Council-sponsored booklet entitled, "I Hated to Buy Drugs, But ——," written by the well-known science writer, Donald Cooley. This booklet is designed to furnish members of the medical and pharmaceutical professions with an approach to the public clamor relative to the high prices they believe they are paying for their medications. From an initial printing of 315,000, copies will reach all members of the Council, the medical and pharmaceutical press, national, state and local associations, boards of pharmacy and medicine, colleges of pharmacy and medicine, science writers, 150,000 physicians, and 54,000 pharmacies.

The Advisory Committee of the Council recommended an enlistment program for encouraging students to study pharmacy. This program would be beamed at the science teachers of the junior and senior high schools, meeting in September or October of 1955, and through them disseminated to the prospective students, possibly through the preparation of a 20- to 30-minute film made available to them for use.

Pilferage

The Cosmetic and Security Association has been established by a group of manufacturers in this industry to attack the problems presented by pilferage, which is conservatively estimated at $7,500,000 a year, it was announced by Sidney R. Hamby, chief engineer of Warner-Hudnut, Inc., in a talk on pilferage before the recent meeting of the American Pharmaceutical Manufacturers' Association. This talk appears in this issue on page 37.

The new organization is being modeled after the Stores' Mutual Protective Association in the department store field, according to Mr. Hamby. The purpose will be to exchange information on the prevention of pilferage by employees, theft and dishonest methods of truck drivers and carriers, and excessive or false claims of shortages by customers. Under discussion since last September, the association now has its charter and has established headquarters at 621 Avenue of the Americas, New York. Officers are being elected early this year.

The $7,500,000 figure is probably low, said Mr. Hamby, representing only 0.5 per cent of the industry's total sales, while at one time Warner-Hudnut losses ran as high as one per cent.

Companies now members of the association are Coty, Faberge, Merck, Schering, and Warner-Hudnut. Many others are intensely interested.

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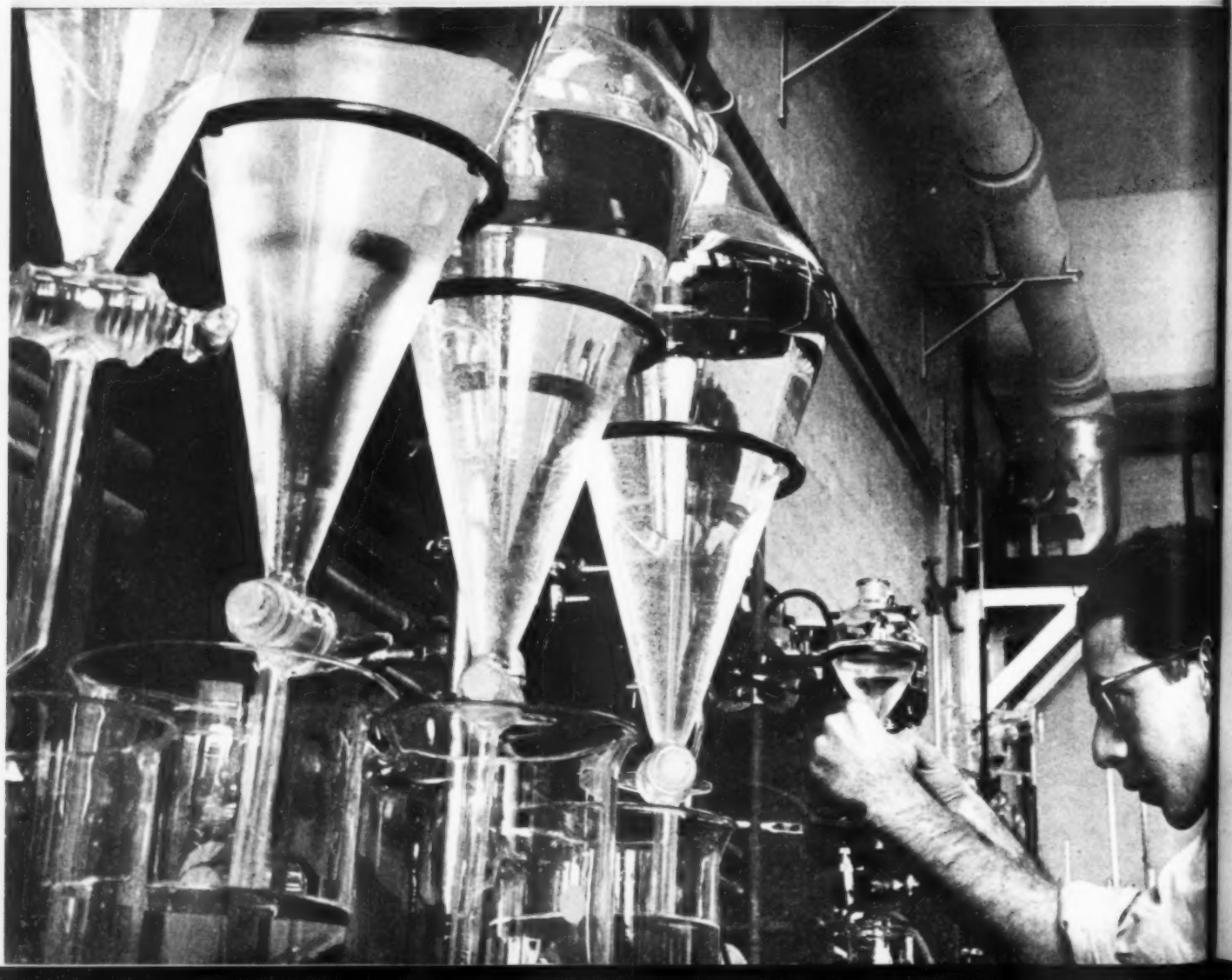

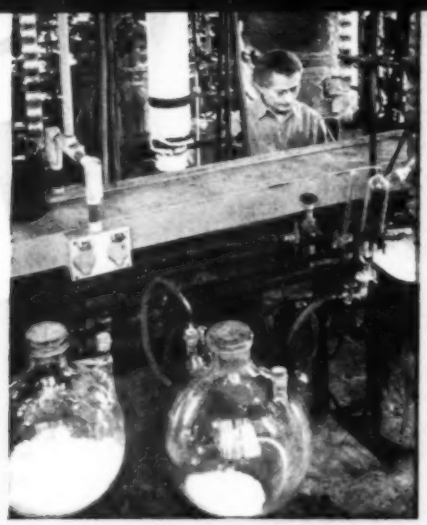

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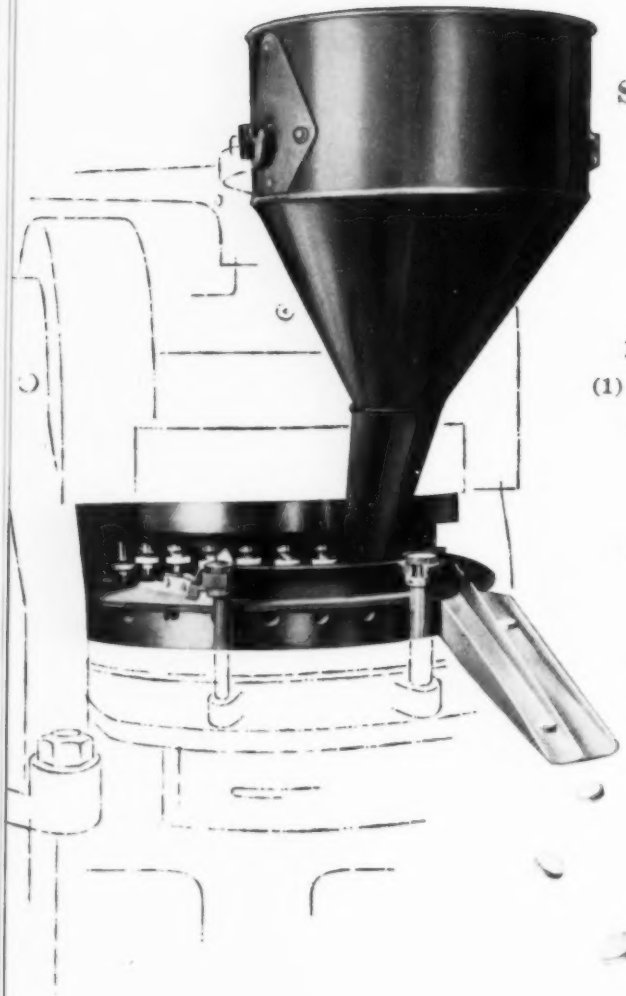

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The FDA and new-drug flavors

by Frank S. Child

Several months ago the Food and Drug Administration circulated a letter around the industry which stated that the exact formulas of flavoring compounds used in new drugs must be filed with that office at the time new-drug applications are filed. This means that flavoring manufacturers must now submit their flavor formulas to the FDA whenever those flavors are used in new drugs. At the same time, if a pharmaceutical firm wishes to know the makeup of a particular flavor it is using in one of its new drugs, it may apply to the FDA and obtain that formula. Of course, the drug house must have a good reason for requesting this information. The point is, however, that it can ask for, and receive, the flavorer's secret formula.

Following on the heels of the coumarin episode, in which this particular flavoring agent was banned from use in foods, the filing of quantitative formulas by flavor manufacturers with the FDA has caused renewed concern in the industry. The flavoring people, especially, and the pharmaceutical houses, are watching these developments closely. The FDA is expected to issue an official statement of policy on the subject in the near future.

Flavor formulas are a vital part of the essential oil firms' business. They are so important, in fact, that these companies employ special, well-trained chemists in their laboratories who are constantly seeking new and different flavor compounds. Is it right, they ask, to spend a great deal of money on new formulas, only to be obliged to file them with the FDA and not know how confidential the information will be kept from that moment on?

Although the FDA specifically states that all such information will be held strictly confidential, the agency at the same time states that it will divulge this information to the pharmaceutical house in whose drug this flavor is incorporated, provided there is a good scientific reason for doing so.

While the pharmaceutical industry is certainly honorable, there still remains the possibility, say the essential oil men, that a slip might occur, once a pharmaceutical firm obtains a flavor formula. Some flavor men pursue this even further by saying that if a drug firm were using extremely large quantities of a flavor it might prefer to compound its own rather than buy it already made. The firm could use this FDA routine in obtaining the flavor formula it desired.

This new controversy was accentuated when several pharmaceutical houses asked flavoring firms to provide them with the formulas of particular flavors in which they were interested. The flavorers in turn replied they would not under any circumstances hand over their trade secrets to the drug manufacturers. In compliance with the FDA letter, however, they agreed to cooperate by submitting the formulas to that agency, from which, in turn, the drug firms could request them.

BLACK STAR PHOTO

Why, the flavoring people ask, should the FDA be so interested in a flavor that goes into a new drug when it is used in such very minute quantities? Assuming a flavor contains 10 per cent lemon oil, for example, the quantity of that flavor used in a given vitamin preparation would amount to about one ounce in 100 pounds of the product. The offending aldehyde present in this preparation would be practically nihil, as far as damage to the B_{12} vitamin is concerned, as confirmed by shelf-life tests.

Prior to the FDA letter, the relationship between the drug firms and their flavor suppliers was one of mutual trust. A pharmaceutical house would contact

its regular flavor supplier, or perhaps several firms, and ask that a certain flavor be submitted for a new drug product. When possible the flavorer would obtain the qualitative composition of the drug, for by knowing its general makeup the chemist could purposely omit those ingredients from the flavor which he knew would cause a reaction with some of the drug constituents. Or, the procedure might have been a more secretive one in which the drug house would order samples of several odors, or of one particular odor, and test the compatibility with its drug product in its own laboratory. The drug firm might tell the flavorer the type of agent it desired, mentioning specifically those ingredients which should be omitted.

All this exchange of limited formula information was carried on with the mutual understanding that it was entirely confidential and would go no further. The essential oil firms took pride in compounding fine flavors and never released a compound to a customer unless it had been thoroughly tested in their own laboratories with the product. For a flavor manufacturer to do otherwise would have been ruinous, for if a company gained the reputation of producing mediocre flavors, no reliable pharmaceutical firm would dare buy its products.

This is one of the strongest arguments the essential oil people have in opposition to the FDA's view on new-drug flavors, for, they contend, there is a great difference between the flavor manufacturer of today who employs specially trained chemists and the pharmacist of years ago who added a few drops of concentrated oil to a pharmaceutical in his store.

Flavor is no longer an art; it is a science. The pharmacist used to mix up a codeine cough syrup for a customer, and, in an attempt to reduce the bitterness, added a little anise or peppermint oil. The droplets of oil, which did not dissolve in the solution but floated on top, were so strong they irritated the throat even more. In addition, the bitter taste of the codeine was still there and should have been countered with a sweetening agent.

This was a common mistake because the pharmacist did not recognize the separate and distinct sensations of taste and flavor, one being registered by the taste buds on the tongue, and the other, by the nose.

Today's flavor chemist devotes his entire time to much more complicated problems of chemistry than this elementary one, the laboratory men point out, and is therefore in a unique position to determine precisely what flavor ingredients to add to each pharmaceutical product that is submitted.

Why, if the flavor chemists do such thorough work, does the FDA still want to have all new-drug flavor formulas on file? Suppose that a particular flavor compound is used for the first time in a pharmaceutical product which is not a new drug but is a preparation like a tonic. The FDA is not interested in this flavor, although it will still be consumed by the public. Why, then, pick on flavors in new drugs? Long-established drug flavors are not under official scrutiny either at the present time. Just where is this flavor inspection program going to stop?

These are some more questions asked by the essential oil men. Only the Federal Agency, of course, can answer them fully; however, this problem does have two sides, and in fairness to the FDA, we must study the situation from that group's point of view as well.

Contrary to the flavor chemist's job, the Food and Drug Administration is interested only in making sure that all of the flavor ingredients are free of toxic substances in the amounts in which they are used. It is not basically interested in whether the flavor is incompatible with the new drug.

Naturally, the flavorers must protect their flavor formulas—their stock in trade—yet, this new FDA plan may not be as odious as some of the flavor people would like to present it.

In 1938, the United States Congress granted the FDA authority by law to ban deleterious substances from foods and to maintain a rigid control over new

drugs. With the more recent discovery of penicillin, and all the other antibiotics the Agency has become increasingly aware of the fact that even minute quantities, traces, or infinitesimals of these drugs do affect the human body in various ways. It is also cognizant of the fact that small amounts of chemical additives in foods may also affect the body. Were the FDA to ignore this possibility it would be failing to carry out its duty of safeguarding the health of the U. S. public. And if, during this period of advance in pharmacology and food technology, some ingredient did prove toxic to human beings—an ingredient the FDA had ignored as harmless—Congress would be the first to find fault. And the Food and Drug Administration would be held responsible, regardless of where the mistake had originated.

The banning of coumarin from foods last year was but one incident in this extended FDA program. Since it cost the food industry thousands of dollars to delete coumarin from every single food and to compound new, coumarin-like flavors, this ruling understandably irritated the flavor people who had been using coumarin in foods for 75 years.

In fact, the flavor manufacturers have become fearful lest the FDA carry this program too far by banning other long-standing ingredients as well. The FDA inspection of flavors in new drugs irritates the flavor manufacturers who honestly believe they themselves are capable of controlling their own flavor programs and seeing to it that their flavors are free from toxic substances. It is incumbent on the FDA, therefore, to gain the unqualified respect of the flavor industry by proving that this Federal Agency has a group of top-notch chemists and pharmacologists who are completely sure of what they are doing. One of the soundest ways in which to bring this feeling about is to form a closer cooperation with that industry, to work in harmony with it, rather than at odds.

(Continued on page 112)

EWING GALLOWAY PHOTO

COURTESY HELENA RUBINSTEIN

COMBINATION COSMETICS

by Harry Hilfer

Cosmetic formulations some twenty-five years ago were bracketed into several divisions and closely held there. There were face powders, lipsticks, rouges, cold creams, night creams and vanishing creams. Hand lotions were stereotyped as well, and no attempt was made to combine the functions of the various products, so that one product served as both the functions of two products. A marked change has taken place in this method of thinking, and we now have many products that serve a multifunctional purpose.

This was caused by the competitive nature of the cosmetic industry primarily and made possible by the appearance of large numbers of synthetic raw materials which before that time were relatively unknown or only laboratory curiosities. The fatty acid synthetic esters of polyhydroxy alcohols contributed materially to the greater variety of emulsions now possible, as have been many of the synthetic emulsifiers now available. Before their appearance the chemist was limited to stearic acid soaps and beeswax-borax emulsions, plus the stabilizing effect of gums.

Perhaps the most startling changes have taken place in the face powders and related facial make-ups. The two standardized forms used to be the loose face powder and the compact face powders. Both these products were essentially the same with the exception of a binder added to the compact powder to ensure the proper strength in the cake after greasing. They both contained the usual concentrations of talc, zinc oxide and other raw materials in common use in face powder manufacture. The first departure of any consequence came with the introduction of the "Cake Make-up." This took the well-known compact form but was applied with a moist applicator. In actual fact an emulsion was prepared in which the powders were incorporated and then the water was evaporated from the mass leaving what was in effect a dehydrated emulsion. The addition of water by means of the wet applicator caused reformation of the emulsion at the point of trituration and enabled the film to be transferred to the face where it could easily be blended to suit the user. After drying, the film had all the important qualities of a face powder and in addition had a "water" finish

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PILFERAGE PREVENTION*

by Sidney R. Hamby

CHIEF ENGINEER, WARNER-HUDNUT, INC.

Nobody knows the magnitude of the pilferage problem in the drug and cosmetic industry. Nobody knows how many millions of dollars are spent each year by customers on drugs that were bought by druggists and wholesalers from thieves or their agents.

We lack an accurate knowledge of the amount of these losses for several reasons:

Inventory controls are generally so inaccurate that they offer no suggestion at all that thievery exists. At one stage in our own campaign against pilferage, when we were trying to catch a group of lipstick thieves at our cosmetic plant, we asked for a close check on our inventory of finished stock. After a week I received a report of a gain of 4000 lipsticks. I found it difficult to believe that the thieves were bringing the stuff back at that rate.

The usual amount involved in the average theft is so small that it will go unnoticed unless someone actually witnesses the act.

Thievery is a subject which many companies prefer to soft-pedal. Fear of public criticism causes many firms to take a lax and complacent attitude, especially when the factory is part of a small community where local prestige might suffer if the company appears to be picking on the individual for small indiscretions.

Many companies have no individual who is solely responsible for pilferage control, and often when pilferage is suspected by a foreman or supervisor the incident goes unreported because he doesn't know what to do about his suspicion.

As a consequence of all these factors we don't really know just how much the drug and cosmetic industry are losing annually from pilferage. We do, however, have some idea about the loss based on our own experience. At one time our losses were estimated at one per cent of the gross sales of drugs and cosmetics. It is our opinion that losses in the drug industry should be estimated at one-half per cent of gross sales, and this would indicate an industry-wide loss of $7.5 million annually. *(Continued on page 112)*

*Presented before the American Pharmaceutical Manufacturer's Association, December 7, 1954.

New Product Development*

by Allan J. Greene

DIRECTOR OF COMMERCIAL DEVELOPMENT,
CHAS. PFIZER & CO., INC., BROOKLYN, N. Y.

The development of new products in the chemical and pharmaceutical industries is a very important function, especially when one realizes that an extremely high percentage of the income of most companies is derived from products which have been introduced only within the last 10 or 15 years.

In the chemical industry, synthetic fibers, plastics, and petrochemicals, which were virtually unknown only a few years ago, now constitute a good percentage of total sales.

This tremendous growth in sales of new products can be attributed to the achievements of highly trained research teams, working with skillful production and engineering personnel, who have been backed up in the field by hard-hitting sales forces. Needless to say, the Management groups involved have shown the necessary vision, foresight and confidence to support their teams with tremendous expenditures.

In the pharmaceutical field, a similar growth pattern based on new products has been evident. The sulfa drugs, antibiotics, vitamins and hormones have revolutionized the treatment of disease during the last 20 years. The phenomenal growth, for instance, of cortisone and hydrocortisone in the last few years to a $40-million-a-year business is typical of what can happen when a product that has a real place in medicine is developed.

Basic research leading to the development of products such as cortisone is really the lifeblood of the pharmaceutical industry. Because of the highly competitive nature of our business, it is vital that all of us find every means of increasing our efficiency in bringing a product to market, once the basic research has been completed. It is this area of product development that I shall discuss. I shall tell you about Pfizer's method of coordinating the development of marketable products.

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On completion of basic research, our Market Research Department is called in on the project and a survey is made to determine the product's market potential. It should be pointed out that this is actually a secondary survey. A more general study in almost all cases would have been carried out before basic research had even begun. This secondary study, however, can be more definite, because more properties of the compound are known.

If the Market Research survey is favorable, a decision is made to proceed further in the development of a marketable product, and to determine its properties in more detail. At this point, the New Product Coordination group gets firmly into the picture.

In the past, as in most companies, the development of new products at Pfizer was primarily the function of the Research Department working closely with Management and Sales. In most cases, little coordination was necessary, as these three groups were able to work together on a day-to-day basis. I know that this was particularly true in our company until only a few years ago.

At that time, it became apparent to everyone that some sort of coordination was necessary because of the large number of products being developed and also because of the complexity of problems encountered in the development of new items, especially in the pharmaceutical field. We set up a special department to coordinate the development of new products.

This department serves as a coordination center with the responsibility for getting the ideas of management, research, sales, advertising and all of the other departments involved, and for operating as a clearing house so that everyone is completely informed at all times.

This New Product Coordination group actually gets into the picture early in the project. When an idea for a new product first arises, the first step is usually a Market Research survey, as I have already pointed out—if the idea is amenable to such a study. The Market Research department makes a survey and submits a report, usually directly to the Director of Research and the Managers of our Sales Divisions.

Using this report as a basis and also considering the possible complexity of the research involved, Research and Sales decide whether or not to go ahead with the project.

If the project gets a green light, at this point, the New Product Coordination group is notified that research on the product has been undertaken, and in some cases an estimate of the probable length of time to accomplish certain objectives is given.

The Accounting Department is also called into the problem at this stage, to assess the economics, if sufficient information is available.

The New Product Coordination group follows the progress of the Research work closely in order to anticipate any actions that might be necessary by other divisions of the company. Other actions, for example, might be the filing of a patent application, the beginning of chronic toxicity tests in the case of a drug, or the study of specifications with the Quality Control group.

As research progresses, periodic meetings are held with the Research Department, Sales Divisions, Market Research, Medical Department, and all other departments concerned, in order to keep everyone posted on progress, on problems when they are encountered, and on any action it may be necessary to take. These meetings are usually called by the Vice President in Charge of Research, and at the present time are being held on a monthly basis with each Sales Division of the company in order to cover all of our activities.

When the Research Director and the Sales Divisions feel that the process or product under study is ready for market consideration, the Pharmaceutical Research Department is called into the picture to prepare dosage forms of the material.

The Medical Department also is called in at this time to get its opinion on the desired formulations for the product.

The New Product Coordination group then becomes the clearing house for information concerning quantities of materials needed for clinical work; the quality of materials as determined by Quality Control; and the supply of raw materials required by the Pharmaceutical Research Department. Time tables are established for the delivery of the formulated product to clinics. Time tables, if possible, are also set up for clinical evaluation, so that all departments concerned will know the exact status of the product's progress.

The Accounting Department can now determine accurately the economics of the product. In most cases, the cost figures are estimated on the product in the idea stage, if enough information is available at that time.

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COURTESY CHAS. PFIZER & CO.

*Presented before the American Pharmaceutical Manufacturers Association, Waldorf-Astoria Hotel, New York, December 7, 1954.

FACE POWDERS*

by Wm. R. Keithler

Face powders are perhaps the simplest form of cosmetics to formulate and manufacture. There are comparatively few raw materials to be used in powders. The requirements of a face power are fundamentally few in number, most important being the coverage or hiding power—the ability to hide or disguise blemishes and cover the shiny portions of skin which for some reason or other a woman does not wish to reveal. The shades are usually made more or less to blend with the coloring of the skin and hair. This is very important, for repeat sales cannot be had unless the customer is well satisfied with the particular color of the powder after being applied to the skin. The third requirement is, as in most cosmetics, an attractive, appealing odor. It has been found by consumer research that distribution and promotion govern the sale of face powder, and that the percentage of the market held by any one particular brand is a function of the quality, color, and odor of that particular face powder. It has also been found that a woman will invariably "stick" to one particular brand and shade.

The control of face powders is relatively simple, as there is not too much danger of wide variances in raw materials. However, the author has encountered one very annoying disturbance—not too long ago, a large quantity of zinc stearate was purchased for use in face powders, and after mixing the ingredients, the powder was put through a comminuting machine. A mysterious rattling could be heard above the din of the comminuter, and upon investigation, small particles of metallic zinc were found lying on the screens. These could be traced back to the original zinc stearate used.

Composite samples of each of the various raw materials used in face powder manufacture should be taken, and examined for particle size and cleanliness. Inorganic tests may also be run, but this is optional with the manufacturer. The manufacturing technique in face powders does not vary to any considerable degree. The equipment used is more or less standard. On a small scale either brush, sifter or ribbon type mixing machines may be used. For grinding the powders, a small Raymond mill is advised. However, this could be replaced by a small ball or pebble mill, or even a hand sifter. In making large batches of face powder, best results will be obtained by the use of the ribbon-type mixer, and rather than a mill, it will be found quite advantageous to use a comminuting machine. This permits adjustment of particle size as desired. More information upon the manufacture of powders and various types of machinery will be commented upon in a later section of this book.

* Condensed from a Forthcoming Book

COURTESY TUSSY COSMETIQUES

The raw materials going into face powders are rather limited as was mentioned previously. Most widely used are zinc oxide, magnesium carbonate, kaolin, talc, zinc stearate, precipitated chalk, and to a lesser degree titanium dioxide. The latter possesses greater dry covering power than does zinc oxide, while being at the same time very finely divided, white, and chemically inert. It may be noted here that any insoluble, inert white powder, 200 mesh or less may be used in face powders in such proportion as to achieve desired results, providing, of course, it has the correct properties.

Adhesion of face powders in the author's opinion has been overrated. The use of proper powder bases, i.e., vanishing creams, has greatly improved both the covering and adhesion properties of face powders so that it is not as important in formulating this product to get a good adhesion as it is the production of a non-slip base.

Compounds assisting in covering power are titanium dioxide, zinc oxide, kaolin, magnesium oxide, and starch. Others less often used are certain of the metallic sulfides, lithophone and calcium sulfate. Slip is another important function and talc, starch and metallic soaps are used for this effect. Calcium, magnesium, aluminum, and zinc stearates, starch, and kaolin aid in adhesive properties. Not quite so important is the function of the powder's absorption. Precipitated chalk, magnesium carbonate, starch, and kaolin are used to assist in this function. The bulk of the face powder manufactured in this country is made up of these ingredients: zinc oxide, talc, kaolin, zinc or magnesium stearate, starch, and chalk. *(Continued on page 122)*

Cosmetic Industry

There are many aspects of the cosmetic industry which account for its past successes and failures and which will contribute to its future progress. Of these, the quality of its personnel is one area of utmost importance in the conduct of the industry. As far as it is known, no study has been previously carried out to measure, either quantitatively or qualitatively, the existing criteria for the selection of personnel within the cosmetic industry or the special and the basic needs of the industry relative to the qualifications of its technical and non-technical employees.

Therefore, a study was planned (1) to explore the possibility that certain personnel policies might be common to a sufficiently large number of firms to indicate existing industry-wide trends, (2) to attempt to identify what type of existing academic program might provide suitable background to meet some of the needs of the industry for its personnel, and (3) to stimulate a more organized effort on the part of industry to systematically study its present and future personnel needs.

The limitations of such a study were recognized from the beginning. The method of study is the accumulation of facts and opinions through questionnaires. The investigator is not employed within the industry, and the subject matter is in an area which some cosmetic firms may regard as confidential.

By its nature, this study cannot provide answers; it should be regarded rather as a pioneer effort to explore possible starting points from which a much more extensive and all-inclusive investigation of industry personnel needs and policies may proceed.

The questionnaire was divided into two parts. The first half was directed toward the accumulation of facts on existing personnel policies, while the second half was directed toward the accumulation of opinions relative to over-all industry personnel policies and problems. In view of the lack of previous studies, the formulation of questions was based on several assumptions which represent the investigator's point of view. First, there is an increasingly close parallel between the cosmetic and the pharmaceutical industries. Second, the proved effectiveness of the pharmacy school graduate in the pharmaceutical industry suggests that the potential role of the pharmacist in the cosmetic industry warrants study. Third, an academic background which includes some courses in the basic biological and physical sciences is desirable for executives in non-technical positions.

The first assumption, that there is an increasingly close parallel between the cosmetic and the pharmaceutical industries, is based on the following reasoning. While there are, and will undoubtedly always be, differences, the similarities are yearly becoming greater as more and more pharmacologically active substances are finding their way into common cosmetic ingredients. Notable among these at present are hormones and vitamins. That the use of these substances is of concern from the health viewpoint cannot be denied. A characteristic area of difference between these two industries is that, contrary to most drugs, cosmetics are intended for one or more daily applications to the healthy skin over a period of years. Also, while drugs with toxic manifestations may be regularly used because of their superior and unparalleled curative effects, cosmetics intended only for beautification are viewed in a different light. Standards of safety must in this respect be higher. The Toilet Goods Association standards for raw materials in many cases have set a higher degree of purity than those set by either the U.S.P. or N.F.

In spite of these differences, cosmetics and drugs are used on the human body, and herein lies a basic relationship. Possibilities of unexpected harmful effects warrant

Personnel Problems

by Veronica Lucey Conley

ASSISTANT SECRETARY,
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consideration. It also seems quite likely that in the future more evidence of cosmetic effectiveness may be necessary. One could therefore expect that a parallel can be drawn between the requirements for the selection of raw materials, the formulation and testing of finished products, the philosophy of advertising and promotion and the quality of personnel. Possibly the greatest divergence at the present time is in the area of advertising and promotion. A greater degree of puffery will probably always characterize cosmetic advertising, but the underlying philosophy of adequate evidence to support basic advertising claims should be common to both industries.

The second assumption is that in view of the proved effectiveness of the pharmacy college graduate in the pharmaceutical industry, which has not yet even here been fully exploited, the role of the pharmacist in the cosmetic industry warrants study. The pharmacy college curriculum is structured so that the physical and biological sciences are correlated to form an educational background of necessary technical knowledge. Subjects aimed at developing competency in the economic and administrative principles of business enterprises are included. This educational background seems unusually suited to the cosmetic industry. This is in no way intended to suggest that pharmacy school graduates should replace the chemist in the cosmetic industry. Its purpose is to emphasize that pharmacy college graduates warrant more consideration than they are receiving as potential employees in the cosmetic industry. Aside from general considerations, the pharmacy college is the only professional school offering a course which concerns itself exclusively with cosmetics. Granted, it usually is an introductory one-semester course which deals in fundamentals. By its nature it can not do more than orient the student to this specialty; its significance lies in the easy and natural way in which it fits into the curriculum.

The third assumption is that an academic background which includes some courses in the basic biological and physical sciences is desirable for executives in non-technical positions. They should be sufficient to provide such personnel with an orientation to fundamental principles and their practical applications. These data provide a background for product knowledge and understanding, essential for the wise conduct of business affairs. The guiding genius of a firm is usually a non-technical person who must in many instances turn to experts for advice on product performance and safety. The greatest challenge, however, is in evaluating the soundness of this advice. Final responsibility rests with the non-technical person at the top of the hierarchial administration structure. It is conducive to better administration when the person who bears final responsibility for the consequences of accepting advice is in a position to evaluate it in the first place. In scientific matters, judgment can not be exercised unless facts are known, and understanding does not exist unless over a period of time there has been exposure to an environment conducive to producing an understanding. On-the-job training is vital, of course, but seldom is it so well planned and supervised or sufficiently prolonged to allow for an understanding of the wide range of scientific principles needed in the cosmetic industry.

With these assumptions as a basis, a questionnaire was formulated. It was sent to representatives among technical and non-technical personnel of 44 cosmetic firms. These are well-established firms and, with the exception of one, members of the Toilet Goods Association. "Technical personnel" was defined as those people concerned with the scientific activities of the

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the SUNTAN

part four *sunscreens*

The second and major class of compounds employed or recommended as sunfilters are collectively termed, "chemical." They are soluble and are easily incorporated into homogenous hydro-alcoholic lotions, emulsion creams, sprays, and those oil soluble, into various oily or greasy type bases. Their function is not mechanical as are the opaque screens but rather of a photochemical nature.

Radiant energy will travel in straight lines until absorbed, reflected, refracted or diffracted. Actinic energy upon striking a highly effective screen such as ethyl-para-amino-benzoate will be subject to two physico-chemical phenomena. A lotion containing two per cent of the above agent, plus the necessary pasticizing material to prevent recrystallization, will deposit a film between 0.02 and 0.05 millimeter thick, where applied on the skin. A small amount of incident energy will be reflected which however accounts for but an inconsequential fraction of the protection afforded. The popularly assigned mechanism by which chemical sunscreens perform their service is by absorption; that is to say actinic wave-lengths upon impact with the defending film, will penetrate a certain distance until molecular resistance to the collision and penetration will slow down the velocity of this energy to zero, and which is simultaneously converted into heat and dissipated. A reasonable parallel might be found in the firing of a bullet into a log longitudinally, which will travel until its energy is expended by the resistance of the wood to its passage.

The writer offers another theory underlying the operation of chemical sunscreens: a two per cent solution of glyceryl para-amino-benzoate in a 50 per cent hydro-alcoholic vehicle, without any plasticizer, will lay down an extremely thin film, probably not more than 0.02 millimeter, which is dry to the touch and invisible to the eye. That this nearly infinitesimal coating can absorb the intense erythemic component of sunlight seems untenable. A more likely process would be that this actinic energy does pass through the deposited film, but during this passage is transformed from erythemogenic wave-lengths to those of a lesser potency in this respect. Incidently, ultra-violet rays of 2967 Angstroms, the peak of erythemogenic activity, hypothetically, might be transformed into frequencies above the erythemogenic zone, i.e., above 3200 Angstroms. This phenomenon—transformation of wave-length—while not proven in sunscreens, is concretely and irrefutably depicted by a simple experiment. The necessary equipment consists of a Hanovia experimental model lamp, or other source of hot mercury arc radiation, a sheet of Wood's filter and a darkened room. Wood's filter transmits invisible ultra-violet rays freely but is almost entirely impervious to any visible energy, or radiation in the visible range between 4000 and 7800 Angstroms. Secure the filter so that the emanation from the burner must pass through same and at the same time take necessary steps to prevent any light from leaking at points of junction. In the darkened room, there be slight visible radiation noted after the arc has been set into operation. At about 12 inches from Wood's filter interpose a small amount of quinine or other fluorescent substance. Where there was darkness before, there is now light being given off by the glowing or fluorescing quinine. Obviously visible energy is now existent. The invisible radiations which were permitted to pass through the Wood's filter, upon coming into contact with the quinine, have been transformed from energy below 4000 Angstroms into visible wave-lengths above 4000 Angstroms, which is the lower limit of the visible range. There can be no uncertainty

INDUSTRY *by L. Stambovsky*

as to the physics at work in this simple dramatization. Invisible wave-lengths of radiant energy have been transformed into visible energy which manifests itself as light. The identical process might very well be the physics by which sunscreens perform their service. Refraction and diffraction are of slight consequence in the mechanisms of sunscreen function.

Chemical Structure and Sunscreen Efficiency

The number of chemicals recommended for use as sunscreens is said to be well over a hundred. Most of these recommendations are based more on fancy than fact. Fluorescence has been interpreted as evidence of protective efficiency but this has been exposed as a fallacy. Molecular complexity and weight too have been regarded as indications of sunscreening capacity. Such reasoning is without foundation as time has so amply proven. A large number of the known sunfilters belong to such families as derivatives of salicylic, anthranilic, cinnamic, para - amino - benzoic and o-vanillic acids. Others consist of pyrrones, benzimidazoles, carbazoles, quinine, tannic acid, coumarin, digalloyl trioleate, benzal-acetomethyl-napthalene and other napthol compounds. Several extremely complex French compounds have recently been announced; they are 4,5-bis(diphenyl-2(3H)-imidazolone, disodium salt of 4,5-bis(p-sulphophenyl)-2(3H)-imidazolone, 4,5-diphenyl-2-mercaptoimidazole, and isobutyl-p-dimethylaminobenzoate. The latter chemical is practically a duplication of ethyl-p-dimethylaminobenzoate which was prepared on the Pacific coast a few years ago.

Kulmer[28] studied the sunscreening action of 45 chemicals and listed their relative values. Since the data given is spectrographic, these figures should be regarded with caution until confirmed by erythemal examination. A perusal of the technical literature will reveal an amazing abundance of compounds that have been proposed as being efficacious in the absorption of erythemogenic ultra-violet. The great majority of same are unsuitable for the purpose and their inclusion here would be burdensome, and of no practical value.

Most Effective Chemical Structures

In a science as dynamic as chemistry, to make positive and final claims relative to the superiority of one sunscreen over another, would be foolhardy. What

may be the pinnacle of efficiency today might easily be relegated to a comparatively inefficient status tomorrow. From the fog of confusion and controversy surrounding the entire subject of sunscreens, two unqualified generalizations have emerged, which may be depended upon to serve as beacons for further exploration. The benzene rings and double bonds present in most of the known compounds are the framework of a chromophoric design responsible for the absorption of erythemogenic radiation. This framework, when filled in with other proper chemical blocks, can eventuate into a structure that shows a strong and almost specific actinolytic activity in the range of interest to the suntan industry. Almost all aromatic chemicals and many straight chain compounds are capable of restricting the transmission of ultra-violet energy in some degree. The majority is so feeble in this respect as to not even warrant consideration. At this date, esters of para-amino-benzoic acid, in comparable concentrations, possess the highest absorption indices of any chemicals so far available. These esters seem to be specifically designed for use in suntan lotions; while their maximum absorption is at 2785 Angstroms, which is somewhat short of 2967 Angstroms, the height of erythemogenic potency, the absorption cure of esters of PABA is so broad that all erythemogenic wave-lengths are included

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Aspects of Several ANTIBIOTICS*

part two Bacitracin *(concluded)* Neomycin

by Wm. Burdell Baker DIRECTOR OF FIELD SALES, ANTIBIOTIC DIVISION, S. B. PENICK & CO., NEW YORK

In laboratory reports, four types of results have been demonstrated in the combining of antibiotics; namely, synergism, antagonism, additive, and indifferent.[23]

It is often quite difficult to clearly establish that the combined effect of two antibacterial substances is synergism or actually excess of simple addition. Also, it should be borne in mind that, with improper combinations, drug antagonism can result. While synergism may be exhibited by a certain drug combination when acting on one micro-organism, antagonism may occur in the presence of another organism.[64-61-17-23] Incidentally, it is not easy to explain such antagonism when it does occur, except perhaps on the basis of a new, antibiotically inactive compound being formed.[66]

Thus we can understand why careful choices must be made on an individual basis for each combination.

Therefore, those of us who use combinations of antibiotics have a challenge and an obligation to meet, in the manner of how best to use them. This duty should certainly not be regarded as too great a price to pay for keeping our modern miracle drugs "in good working order."[67]

Bacitracin and Synergism: The evidence for synergistic action among certain antibiotics is well established, even though a fully satisfactory explanation of this intricate mode of action is not fully known. Synergism is of much practical concern and interest to the physician, in view of the need for using suitable combinations to cure infections due to micro-organisms which do not respond to single drugs; and to effect a higher percentage of cures, as well as making economical use of this property.[5-61-23-66-14]

Examples of synergistic combinations of bacitracin, with several other antibiotics, are documented in the literature. For instance, bacitracin with penicillin is known to be synergistic,[5-68-69-61] *in vivo*[66] and *in vitro*.[70-63] Also, bacitracin with streptomycin is said to frequently act synergistically.[69-61] A synergistic effect has been demonstrated with a combination of bacitracin, streptomycin, and polymixin.[71-72]

The same is true of bacitracin with neomycin,[61] and in this case the combination is viewed favorably even though commitment toward proved synergism is not always made, but rather the favorable mention is based on clinical impressions of therapeutic efficacy and relatively low sensitizing potential of the combination.[14-31-73-33] The combination of bacitracin and neomycin is said to be especially effective in controlling lesions harboring both Gram-positive and Gram-negative organisms.[115] Also, *in vitro*, the combination shows enhanced activity against strains of *Shigella dysenteriae*, *Streplococcus faecalis*, and *Endamoeba histolytica*.[74-75]

However, to complicate the picture, one investigator claims to have encountered actual *antagonism* between the two antibiotics, bacitracin and neomycin; during studies of intestinal antiseptic action in dogs.[76]

The combination of bacitracin and polymixin B sulfate is also mentioned favorably,[77-32-27-22] and is said to have demonstrated actual synergism based on *in vitro* experiments.[77]

The combination of bacitracin and tyrothricin is reported to be synergistic.[78] Since both of these are mainly effective against Gram-positive organisms, and although the combination has proved to be effective in local pyogenic skin infections, it is not too surprising that definitely superior results are not reported with the combination in comparison with the antibiotics used singly. The investigators studying the combination had

*Presented, in part, at the meeting of the Research and Development Section, American Drug Manufacturers Ass'n, Atlantic City, N. J., October 7-9, 1954.

hoped to demonstrate exceptionally superior results. They also sought evidence that a new compound is formed between bacitracin and tyrothricin, but found no such evidence.[23]

However, in addition to at least the partial advantage of synergism, the low incidence of sensitivity of the ointment form of bacitracin-tyrothricin was found to fit the requirement of many clinicians who prefer to use, for local therapy, drugs or combinations with little or no systemic use; thereby avoiding the risk of sensitizing a patient to antibiotics that may be required for parenteral use at a future time.[78,23]

A synergistic effect has been demonstrated with a combination of bacitracin, streptomycin, and polymixin.[71] In another instance, a topically applied combination of bacitracin, streptomycin, and polymixin was said to be more effective than that expected from the sum of its components, and the range of activity considerably wider than that of its own individual components.[79]

Although synergism exists among certain antibiotics to a gratifying extent, there is still much to be learned about the subject. For instance, it is apparently impossible to predict whether a particular combination will prove synergistic or antagonistic.[80,63,81]

At best, synergism is a complex subject, and there are questions that need answering. Why are some combinations synergistic, while others are not? Why do certain combinations in particular doses result in synergism in some cases, and antagonism in others?

There is still much serious work to be done where it becomes necessary or desirable to determine which combinations are good, bad, or indifferent.

To complicate the picture still further, the same combination may show synergism under one condition and antagonism under another. In such a case, it has been said that the deciding factor appears to be the strain of bacteria. For instance, in test tube experiments with a combination of bacitracin and terramycin, a marked synergism of the antibacterial action resulted when a particular combination of doses was added to a culture containing bacitracin-resistant staphylococcus; while antagonism resulted with the bacitracin-sensitive streptococcus.[63]

Bacitracin Compounds

The ability of bacitracin to form new compounds is known. For example, bacitracin with the new antibiotic chlortetracycline, combines to form a new compound, aureotracin; which is said to retain the antibacterial properties of both parent drugs.[82]

Also, bacitracin is precipitated by salts of heavy metals and, if the heavy metals are low in the electromotive series, the precipitation is accompanied by inactivation. However, when they are *high* in the electromotive series, inactivation does not result.

Zinc ions, being in this latter category, form zinc bacitracin; an active compound which exerts bacitracin *activity*,[164] when employed orally.[83] However, reports of clinical experience with zinc bacitracin are practically non-existant and critical analysis of its status is not possible at this time.

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Bacitracin Methylene Disalicylate

Salicylic acid yields precipitates with bacitracin activity.[164]

Methylene disalicylic acid forms an especially attractive salt with bacitracin, which has been named bacitracin methylene disalicylate.[84]

The new salt or compound of bacitracin is prepared by the precipitation from bacitracin solutions by treatment with methylene disalicylic acid, followed by proper adjustment of the pH. The precipitate then contains practically all of the bacitracin *activity* originally present in solution.[84]

Properties: Bacitracin methylene disalicylate is a white amorphous solid; cream-colored to white in appearance, depending on the purity of bacitracin solutions from which it is made.

It is substantially insoluble in water, benzene, ether, ethyl, alcohol, acetone, chloroform, pentane, and the cellosolves. It is soluble in pyridine and dilute aqueous alkali, and sparingly soluble in five per cent acetic acid.

The compound is stable under the usual conditions of storage and handling. In fact, it is quite stable at 37° C., with only a minor loss of activity of high-potency material after 16 weeks of incubation temperature. Its stability in aqueous contact is like parent bacitracin.

Potency: The potency of bacitracin methylene disalicylate, which has the same antibiotic spectrum as bacitracin itself, is expressed in terms of its bacitracin *activity*. It has been prepared in potencies ranging from 14 to 38.0 units per mg. of bacitracin *activity*, as compared to the master reference standard.[13]

The *lower potency* material (14 units/mg.) has found its greatest application in the animal and poultry field.

The *high potency* material (38 units/mg.), which is still in the experimental stage, has strong implications for human usage in the same conditions for which parent bacitracin is employed. Recently, in its consideration as an oral antibiotic for gastro-intestinal use, it was studied for safety, in animals (rats, guinea pigs, dogs), in dosages comparable to those used with bacitracin. There was nothing in the toxicologic data obtained which would preclude its use for the same purposes as bacitracin. The investigators also noted that the administration of 60,000, 120,000, or 240,000 units over a 12-hour period, to humans did not result in detectable levels of bacitracin in the blood or urine.[85]

Veterinary Uses: As mentioned, the primary use of *lower potency* bacitracin methylene disalicylate has been in the veterinary field. For instance, it was reported to be an effective treatment for swine enteritis (acute hermorrhagic dysentery) and infectious baby pig scours.[86] It has also reported to be an effective growth stimulant for chicks and turkeys,[87] and for growing pigs.[86]

The effectiveness of the compound is also derived from its bacitracin *activity;* however, although the precedence for trials of the complex was largely based on earlier animal usage of bacitracin itself[12,88,89,90,91,92], bacitracin methylene disalicylate is more advantageous in the animal and poultry field than present bacitracin primarily because of better economy and convenience.

In the treatment of swine dysenteries, the following objectives were set forth[86] prior to investigation of this new bacitracin complex: (a) rapid control of the infectious process, (b) control of dehydration and electrolyte disturbance, (c) overcoming of after-effects of stunting, (d) ease of administration in large herds, (e) in some cases, continual prophylactic therapy to prevent relapse, (f) relatively low expense for long term therapy, and (g) not precipitate. It maintains its stability in water for days and, while no more water-stable than bacitracin itself, this presents no handicap for animal drinking water purposes; since the usual procedure is to frequently refurbish drinking water medication, to be sure the animals receive fresh water, etc.

Specialties: As in the case of the insoluble bacitracin methylene disalicylate, the *soluble* form should also be well suited for combining with other suitable active agents; in which case, such agents, as well as any base employed, should be water-soluble.

A combination along these lines could be devised economically as a specialty product, with the manufacturer's trade name, etc.

A soluble form of the *high potency* bacitracin methylene disalicylate, a highly purified form, is now also available, and experimentation should eventually reveal suitable applications for its use.

Neomycin

Neomycin is produced by a strain of *Streptomyces* closely related to *Streptomyces fradiae*, a soil-culture micro-organism. Its discovery came as a result of a search for an antibiotic having activity against streptomycin-resistant organisms, particularly the tubercle bacillus.[105,26]

Neomycin is a water-soluble polybasic acid which forms crystalline salts.[74] The crude product, for which the name "neomycin complex" was formerly suggested, has been shown by Craig counter-current distribution to be a mixture of at least three antimicrobial substances.[106,107,108]

The basic nature of neomycin is confirmed by its formation of a sulfate, a hydrochloride, and a picrate; and also by its absorption on cationic but not anionic exchangers.[3]

In actual medicinal and pharmaceutical usage, a salt of neomycin is most practical; the sulfate or the hydrochloride.

In the literature, where references are made only to neomycin, it is usually the *sulfate* that was employed in actual practice, and the potencies are then meant to express the neomycin *activity* of the salt; for instance, mcgm. base/mg. salt.

Reference Standard and Potency: Neomycin salts are standardized by biological assay, as established by the Antibiotics Division of the U. S. Food and Drug Administration. Formerly, the standard was based on Waksman units, but as purification of the antibiotic proceeded, a metric weight basis was adopted. Now, 1 Waksman unit is equivalent to 3.3 micrograms of neomycin base, the master standard containing 730 micrograms of neomycin base per milligram of anhydrous salt; and in commercial production the potency usually ranges between 600-750 micrograms of neomycin base per milligram of sulfate or hydrochloride.[109,110,3]

Properties: Neomycin sulfate, the most widely used salt, is soluble in water, slightly soluble in methanol, and insoluble in other organic solvents. The chemical structure has not yet been determined.[74] Other chemical properties, in addition to detailed bacteriological and other details, are tabulated elsewhere.[11,110]

Stability: While neomycin is fairly stable over the wide range of pH 2.0-9.0, it is exceptionally stable in the presence of alkalies. It is thermostable in neutral solution and at pH 2.0, and is indefinitely stable in aqueous solution. Subjected to extreme treatment, such as boiling with mineral acids, decomposition has been noted.[106,111,112,11,105,113,114,110]

While the stability of neomycin and its salts is well established, additional laboratory data is recorded in the following graphs: for neomycin sulfate and hydrochloride, in experimental aqueous solutions and in experimental ophthalmic ointments.[115]

(Continued on page 106)

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Aerosol Powder Dispensing*

by Walter C. Beard, Jr.

MANAGER, VALVE DIVISION,
THE RISDON MANUFACTURING CO., NAUGATUCK, CONN.

In the development of pressurized packages, many products are found not to be soluble in the propellent or known propellent-solvent systems. Further, the products may not lend themselves to aeration as foams or be compatible with a foaming agent. Nevertheless, their utility as well as their marketability might well be enhanced if spraying from a disposable container could be shown to be feasible. Products of this type may lend themselves to being dispensed as powders or dusts, and should not be dismissed from consideration because of solubility difficulties. In fact, some materials now being dispensed in solvent bases might give better end-use performance if applied as dry powders. Other products are normally used only as dusts, such as certain topical medicaments and fungicides; these could, in the course of time, be marketed in pressurized containers.

From other standpoints, the pressurized dry powder dispenser offers several advantages over hand operated powder guns, squeeze bottles or other types of insufflators. For example: more uniform deposits are usually obtained from pressurized containers; water sensitive materials can be kept in an essentially anhydrous state for the life of the package; medical and cosmetic products can be maintained under sterile conditions; and, contamination or refilling is virtually impossible.

Problems

As with the development of other types of aerosol products, certain problems are encountered with powders, and few products can be taken from the shelf and pressurized without giving some thought to reformulation to meet the requirements of the new package. In keeping with expectations, the greatest of these problems is clogging. A secondary, but closely related problem is leakage. A clogged valve will often be a leaking valve.

Clogging appears to result from one or more of the following:

a) Large and/or needle-shaped particles,

b) The presence of only partially soluble resinous or crystalline materials in the product,

c) Agglomerative sedimentation of the product.

*Presented at the Chemical Specialties Manufacturers Ass'n Joint Aerosol and Automotive Program, Hotel New Yorker, December 8, 1954.

From the standpoint of particle size alone, no limiting dimensions have been established; however, protein particles up to and in the 150 micron range have been handled with no difficulty on a low solids basis. Talc composed of particles in the 50 to 75 micron range is readily handled at a 10 per cent solids level; 20, 30 per cent, and possibly higher percentages of insoluble solids can be handled under some conditions. Needle-shaped or fibrous particles, as well as extra large ones, tend to mat or form "filter cakes" in the valve passages and cause clogging, even at low solids levels. They may also deposit at the valve seat, prevent the valve from closing, and thus cause leakage. Even so, this type of trouble can be reduced through proper formulation and valve design.

Materials having only a limited solubility in the propellent-solvent system tend to give trouble for at least two reasons: one, particle sizes tend to increase due to crystal growth on standing, and for the same reason, aggregates of crystals and insoluble components may form; second, materials of this type tend to become deposited at the expansion orifices and spray nozzle of the valve due to the rapid loss of solvent by evaporation at these points. These deposits cause clogging and leaking. DDT powder and cube resins, for example, have been found to be particularly troublesome in this respect.

Clogging due to agglomerative sedimentation—the formation of hard packed cakes of powder in the bottom of the container and, at the same time, hard plugs in the lower end of the valve dip tube—can be eliminated or minimized through the use of certain selected propellents or propellent mixtures. Sedimentation may

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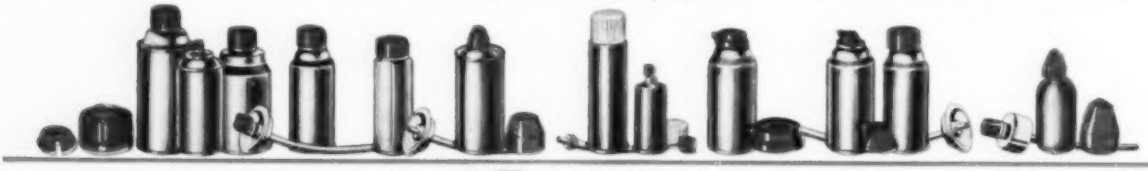

● *We invite your inquiry to enable our staff of aerosol valve technicians to work cooperatively in satisfying your valve requirements.*

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also be reduced by the use of certain suspending agents in combination with the selected propellent, if the foreign material will not affect the quality of the product. The first of these processes offers distinct advantages for medical and cosmetic applications because no extraneous materials are deposited with the active ingredients.

Process

The selected propellent process is based on the discovery that agglomerative sedimentation is materially reduced when the propellent is selected or prepared to have a specific gravity greater than, equal to, or within about eight-tenths of a gravity unit less than the specific gravity of powder to be dispensed. In this process, the powder will be uniformly dispersed in the propellent, will float, or will settle slightly to form soft cakes which can be readily dispersed on shaking. Propellents may consist of typical halogenated hydrocarbons, low boiling hydrocarbons, mixtures of these, or any suitable liquified gases, or solutions of gases in liquids.

Three examples from the patent applications should illustrate the applicability of the process:

1. An antibiotic with an inert diluent dust having a specific gravity of 1.52 was successfully prepared and dispensed as a pressurized product using either 65 per cent "Freon-113"[1] and 35 per cent "Freon-12"[2] having a specific gravity of ca. 1.45; or 65 per cent "Freon-11"[3] and 35 per cent "Freon-12" having a specific gravity of ca. 1.39. The latter mixture was adopted for production because of lower costs.

2. The 65 per cent "Freon-113"-35 per cent "Freon-12" mixture was found to give excellent results with a certain complex protein material which floated in the propellent. This example is of further interest because the "Freon-113" first served as a grinding medium in which the particle size of the amorphous protein could be reduced to a usable size. Here, as in certain other instances, the product was handled as slurry at room temperatures, and the "Freon-12" was introduced later for pressurizing.

3. Sodium bicarbonate having a specific gravity of ca. 2.2 and a particle size of approx. 80 microns was dispensed by use of a propellent consisting of 50 per cent "Freon-11" and 50 per cent "Freon-12" having a specific gravity of ca. 1.4.

Considering the problems of selected specific gravity, pressure, and cost, a mixture of 65 per cent "Freon-11" and 35 per cent "Freon-12", which develops 25 psig at 70° F., appears to be widely suited for powder work. This mixture also lends itself for use in protected glass containers. Samples prepared in glass can be studied, for example, for sedimentation rates, case of redispersion, visual changes with age, and the development of agglomerates. Commercial packages as well are readily made in glass.

1. du Pont brand trichlorotrifluroethane.
2. du Pont brand dichlorodifluromethane.
3. du Pont brand trichloromonofluromethane.

Production filling of pressurized powders should present no great problems. The product may be added as a dry powder and the propellent as a liquid under refrigeration, or by pressure filling; or, the powder may be introduced in the form of a slurry in the high boiling component of the propellent, or as a slurry in the total propellent mix.

Valve

When a high percentage of solids is to be dispensed—say 10 per cent to 30 per cent by weight—it may be necessary to modify the valve orifices and, expansion chambers, as well as the propellent pressure, to provide for a comparatively high spray rate. This may be found objectionable because of the widespread dispersal of the product; nevertheless, a rapid through-put is often necessary to prevent the powder from piling up or caking in the valve mechanism. This particular consideration serves to point out that the problems of handling dry powders are best understood as being analogous to those encountered in the handling of ordinary slurries of finely divided solids in non-volatile liquids, viz., the product is easier to handle when it is kept in uniform suspension and kept moving.

Valves designed for powder spraying provide unrestricted access of the product-propellent slurry to the valve seat and an exceptionally short, free path from the seat to the spray orifice. This path is only a few thousandths of an inch long, and thus almost eliminates space in which product could accumulate to collect moisture or fall back to cause subsequent clogging. Further, the valves have a sharp shut-off and a high valve seating pressure, both features essential for minimizing leakage. Proper seating, or tight sealing, appears to depend to some extent on the hardness as well as dimensions of the powder particles. If the particles are too large and too hard to be crushed between the valve face and a tough valve seat, such as "Teflon,"[4] a softer more resistent rubber seat may be necessary to effect a seal.

Valves should be operated wide open without attempting to control or throttle the spray rate by varying the pressure on the actuator; otherwise, product may build up at the valve seat and make a tight shut-off difficult or impossible. Such valves are not only suitable for use with the selected propellent process but will facilitate the spraying of powders incorporating suspending and carrying agents.

Conclusions

In summary, a process and means are available for dispensing many products in a powdered form from "aerosol" containers. This should lead to the eventual or increased marketing of such items as topical dusting powders, antibiotics, fungicides, foot powders, deodorants, dry lubricants, fire extinguishing agents, food products, absorbent powders, and insecticidal dusts in pressurized packages.

4. du Pont brand polytetrafluoroethylene.

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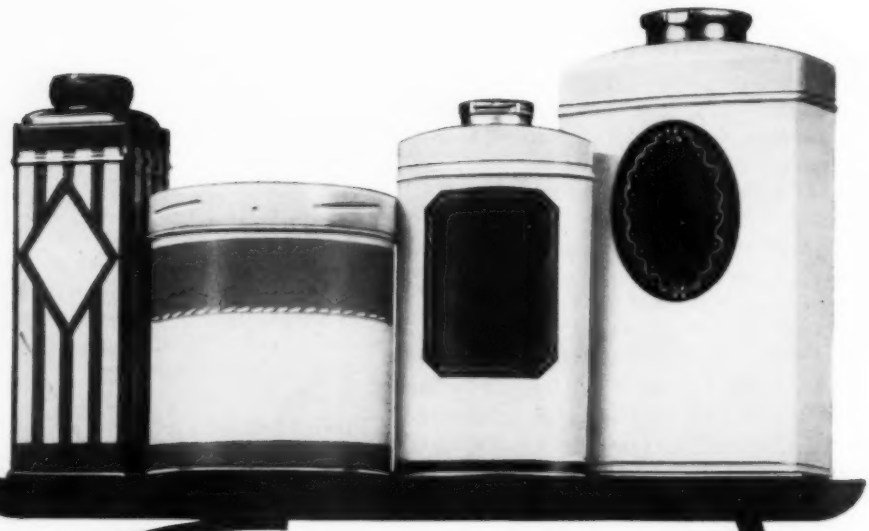

● On the store counter or in the home, your product will *look* and *act* its very best in a Continental container. Our artists and lithographers take infinite pains to make packages that are *easy to look* at . . . our design people work equally hard to make packages that are *easy to use*. And, always available to our customers are the skilled services of engineers, scientists and package machinery specialists. Why not see what Continental's Tailor-Made Package Service can do for you — personally.

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Packaging and Selling

APPROACHING LIMITS IN THE SUPER-MARKET

Here and there, and not too clearly, we think we may see evidence that the tidal wave of super-market and self-service selling expansion in the retailing of toilet articles or cosmetic products has reached its peak and may even be receding.

Statements now appearing in trade and advertising magazines state that grocery stores are doing as much as 40 per cent of the total sales of cosmetics and toiletries which last year slightly passed the billion-dollar retail mark. This claims a colossal chunk of the toiletries business, which incidentally, we have the temerity to state, is grossly exaggerated.

It would have been perfectly normal for certain toiletries to slip over into the grocery store—toiletries which are staple utilities or every-day necessities and which have no more glamour or fashion or style than a stick of chewing gum, no matter what their advertising says. By this we mean such pickup items as tooth paste, shaving cream, and a few other staple products consistently supporting two- or three-million-dollar advertising campaigns.

The excitement and the alarm occasioned in this trade by the threat of the super-market rests almost entirely with the current success of the Hazel Bishop lipstick. Nobody in this industry, in the selected, better class retail stores, who uses personal selling and has developed a real cosmetic clientele, and has a store environment suitable for fashion or prestige products, would have given a second thought at seeing Colgate, Jergens, Mennen, Lady Esther, Pond's and other of the mass-distributed lines move over into grocery-store distribution.

The lipstick, around which every other makeup item clings, is an entirely different proposition. Here is a leading product of an essential branch of the cosmetic industry, that is, makeup. In makeup the cosmetic industry has, with fragrance, the two large groupings in which style and fashion and prestige play a real part. In makeup also, the industry has its basic field where the paid demonstrator of the manufacturer in a retail store and the trained salesgirl have exerted their greatest influence.

The industry well knows that, if lipstick should be destroyed as a style or fashion product and converted into a utility, a mortal wound would be inflicted on the industry as we know it today.

This lipstick is therefore the real reason for the excitement and the alarms over expansion into the super-market.

What the industry forgets is that we have seen many times in this industry an exciting, stimulating and potent advertising appeal which, for a few years, has wrought miracles. This advertising has disproved previous case histories of successes and failure and has confounded the accumulated wisdom of the elders of the industry while the advertising retained its original potency.

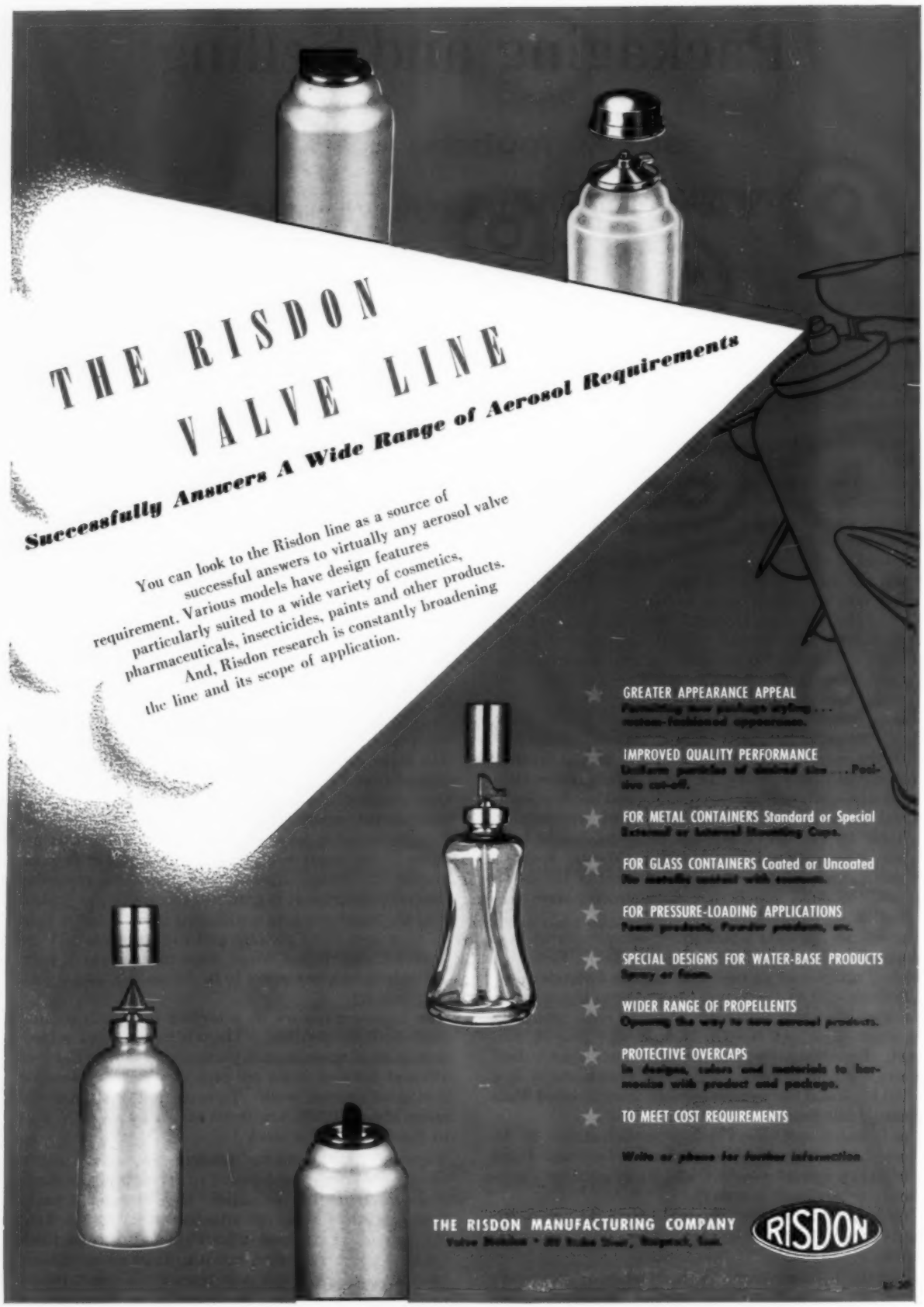
We again have the temerity to suggest that (1) the lipstick will not be lost to the industry as a fashion, style product; (2) that it will not succeed in the super market and (3) that such a mass product, reaching a distribution which extends to any appreciable extent beyond the stores in which may be found personal selling, or a clientele which seeks style and fashion, will not be able to maintain the dollar price and will soon find its product selling below 50 cents. Soon thereafter such a product will be of no more competitive significance to the style and fashion part of the industry, or to personal selling in a retail store, than is any one of the present excellent lipsticks now selling in the variety stores for 25 cents.

All this discussion of the lipstick is getting a little bit away from our initial premise that there are signs of a super-market limit in "take it or leave it" selling.

The super markets have yet to face the really vicious competition, that seems to be at a bursting point, for their position in their basic field which is food retailing. Witness the recent statement of an executive of Food Fair as to what food manufacturers' promotions are doing to the super market. Also witness the fear expressed by many super-market operators regarding farmers' markets. It is growing more and more evident that the super markets are digging in for a bitter fight on their own home grounds and will have less and less time for superfluous fringe departments which may, in the long run, not prove to be compatible with a food environment.

Here's another remark by a leading food multiple-unit super-market operator. "There is murderous competition in shelf space in today's super markets. Between 150 and 200 new items are presented for consideration during an average week. To accept all of them would mean about 10,000 new items added in a year's time to the 6,000 now in stock.

Anyone in the cosmetic industry who has a super-market obsession would do well to ask himself how many single products or specialties, such as a tooth paste, there are in the whole cosmetic industry that can stand the gaff in competition with 10,000 submitted items for shelf space in a super market. How many of them have the price appeal, the necessity element which motivates self service, the universal application, the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You can look to the Risdon line as a source of successful answers to virtually any aerosol valve requirement. Various models have design features particularly suited to a wide variety of cosmetics, pharmaceuticals, insecticides, paints and other products. And, Risdon research is constantly broadening the line and its scope of application.
GREATER APPEARANCE APPEAL
IMPROVED QUALITY PERFORMANCE
FOR METAL CONTAINERS Standard or Special
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SPECIAL DESIGNS FOR WATER-BASE PRODUCTS
WIDER RANGE OF PROPELLENTS
PROTECTIVE OVERCAPS
TO MEET COST REQUIREMENTS
THE RISDON MANUFACTURING COMPANY
RISDON

ability to support a several-million-dollar advertising appropriation, and the ability to support a sales force which can even skirt the fringe of this vast, complicated, seething and boiling body of retailers?

Helping Nature

The chemist has been doing so many things to improve on nature in the last few years that it seems hardly worth noting when something new of this sort comes along. One of the interesting ways in which the chemist has come to the aid of nature has been in the marketing of farm crops. The use of applied colors to improve the appearance of some fruits has been going on for quite a long time. It remains for the Florida Citrus Commission to decide that a little extra perfuming would be a valuable sales plus. Dr. Everette M. Burdick, Coral Gables, is reported to have produced several fruit odors notably orange, grapefruit, tangerine, lemon and lime which, the Commission states, field men can squirt on fruit when on display.

Don't, Don't Be Logical

According to Albert Sheppard, Executive Vice President of the Institute for Research and Mass Motivation, customers, whether ordinary or industrial purchasers, seldom buy products they need for "logical or rational reasons."

Although the industrial ad must have some logical platform, this cold rational approach is not the decisive one in reaching the industrial consumer. "Therefore the concept which appears in the hand of the copywriter is the need to create the illusion of rational consideration for the product."

The industrial buyer wants the ad to "pat him on the back and tell him that the advertiser knows he is skilled, and that this machine is a tribute to his skill."

Broadening Research

In this era of super competition in retail stores and at the point of sale—a condition which is likely to increase rather than diminish—manufacturers are seeking outside aid in assessing their way of doing business in many different fields.

Research no longer means just product research, although that is becoming increasingly essential for survival. Quite a number of organizations are gaining stature in the role of package research, in such divisions as color research. Market research is developing in many directions, particularly along lines of studies of consumer behavior.

The successful manufacturer of today must properly assess every phase of his business and particularly assess these phases from the viewpoint of his customer. For instance, in a recent article in a retail journal here's what the writer listed as the yardstick which super markets are increasingly applying to the products which they stock. This yardstick includes: (1) The quality of the product, (2) the sales value and handling value of a package, (3) the consumer reception of the product, (4) turnover, (5) the retail gross profit and (6) analysis of all the manufacturers' selling terms, including cash discounts, advertising allowances, point of sale promotions, etc.

Famous Wrong Guesses

For quite a few years now, shoppers in New York have been less and less conscious of the famous department store, John Wanamaker, located in a quiet eddy of the vigorously pulsating stream of business which has been moving steadily northward.

It was 48 years ago that John Wanamaker decided to disregard this northern flow of traffic and retail business and, contrary to the vigorous arguments of his associates, to keep the store at Broadway and Eighth Street.

What was said to influence Mr. Wanamaker and what continued to influence the company was a long-term leasehold on the land which put the rental at a cost of around one million dollars a year. Uptown property of similar size has been costing over 3½ million dollars. It was thought that this differential, which has steadily been increasing, would give the down-town company a large additional sum for sales promotion.

The wrong guess of this famous merchant, and succeeding management in this company could be called a violation of a principle which probably goes back to the beginning of primitive business, and that is not to buck a trend or the flow of the tide.

The Miracle of the Bees

The great discovery of the cosmetic industry for 1955, undoubtedly, and as we are wont to say, the result of years of research is sure to be what one advertiser labels "The miracle-of-the-Bees."

During 1955, quite a number of cosmetic companies will participate in this miracle. Three companies have already been so blessed and reports are that several others will receive this divine touch.

What is this miracle of the bees? It would be best to quote directly from a current advertisement, rather than to take a chance using our own vocabulary. This is the quote: "It is the enchanted essence that mysteriously, miraculously transforms an ordinary bee larva into the supremely young, dazzling beautiful Queen Bee! Fed an exclusive diet of "royal jelly" made in the bodies of worker bees, the Queen is able to stay vibrantly young forty times longer than her subjects. XXXXX Laboratories has captured this rare raw substance in the most amazing beauty cream ever created! The merest touch of this XXXXX Cream nightly will help your skin become beautifully younger looking, lovelier in every way."

Should the Customer Be Paid?

Here's a question that maybe business will have to answer, recently asked by an editor of a business magazine. "If the customer participates more and more in the selling process, isn't he entitled to a larger share of the regular markup?"

In other words, in one-stop shopping, in self-service or in self-selection, the retailer is asking the customer to do more and more of his own work. When that takes place, shouldn't the retailer give the customer some of

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Now is the time to evaluate your product for "push-button" dispensing. Aerosols are booming. New applications for appealing, self-spraying packages are being discovered every day. If you are presently marketing your product in liquid form, the chances are you can also package it as spray or foam. Your product deserves analysis now, so we suggest you arrange with us for a free, comprehensive laboratory report. On the physical side, Continental's complete production, laboratory, and warehousing facilities eliminate any capital expenditure on your part. We do not merchandise packaged items of our own. Our sole operation is filling containers with your products . . . liquid, pressurized, or aerosol. Write today.

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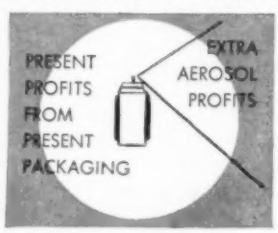
WAREHOUSING. Ample bulk storage space enables us to keep a good supply of your ingredients available at all times. Drop shipping in bulk lots. Use our Midwest plants as central distributing points.



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LIQUID *SPRAY* *FOAM*

MAIN OFFICE • 123 NORTH HAZEL STREET, DANVILLE, ILLINOIS

CONTINENTAL FILLING CORPORATION

PLANTS • DANVILLE, ILLINOIS — HOBART, INDIANA

his markup? The grocery super market has done this, but we have yet to hear of the department store or the druggist, who is so blithely sailing into these new forms of customer participation, passing anything on to the customer out of his markup.

Bottle Seal

The Conart Seal is a moisture-activated Glassine or cellophane seal which is said to prevent leakage or evaporation in sealing glass bottles. The seal is

applied to the moistened rim of the glass container as the pressure is tightened. No glue is needed and a special sponge moistener for the capping machine is provided by the Conart Company, which is located at Glen Head, Long Island.

Calendar Promotion

The calendars of the Plough Company have long been recognized as a top, successful retailer promotion. Just recently, a survey was made by Plough, Inc., to determine the success of the six million calendars distributed in 1954 for St. Joseph Aspirin and St. Joseph Aspirin for children. This study was made among three different panel groups in retail drug stores. These panel groups were selected as (1) Stores not using the calendar, (2) Similar size and kinds of stores which distributed calendars in amounts from one to 1,000 and (3) Stores which distributed this number of calendars but in addition displayed and advertised the St. Joseph products.

The survey indicated that the stores distributing the St. Joseph calendars sold 380 per cent more St. Joseph products than the stores that did not use the calendar. Stores which distributed the calendar, and in addition advertised, sold 739 per cent more than the control group which did not use the calendar.

Factory a Package

Is a factory building a package? A good case could be made out for such a conception because, aside from theorizing on the contents, the factory building certainly is a display package in its community, and to transients. While a few companies in this trade have arrived at the belief that a factory can provide a valuable display that illustrates the character, the personality and the policy of the business, it must be said that the large majority of factories fall very far short of this ideal. In fact, we have quite a considerable number of factories in this industry that would provide quite a serious shock if any of the companies' retailers or consumers were to see these in operation.

Modern architecture and landscaping provides unlimited packaging opportunities for companies in our industry to use their plants as important instruments, not only in community public relations, but according to location, in institutional advertising.

As an example, a two-storey office building has just been completed by the Aluminum Company of America in Cincinnati. This office building has an exterior in gleaming blue and gold aluminum. That is just a suggestion of the many possibilities open to companies in this industry, whether they move in a direction suitable for a cosmetic or perfume manufacturer or in the more restrained direction of an ethical drug manufacturer.

Less Evening Shopping

During the last few years there has been a great deal of interest over evening shopping, and many retailers who did not bend to this apparent trend were criticized for ignoring the convenience and the preference of their customers.

It seemed logical that evening shopping might increase because of the large number of married women employed and because of the increasing amount of shopping in family units, that is husband and wife, particularly for food products.

That this may not be a trend, but only a temporary fad, is indicated by a survey of the School of Retailing, New York University, which indicates that after-work shopping is less popular this year than in previous years.

Say No More

According to the National Tobacco Research Council, the total Government tax from cigarettes is greater than the combined net income of tobacco farmers and manufacturers.

De-Emphasis

Apparently, we are going to see a lot of "de-emphasis" in retail selling if the discount house continues to grow under the shelter of fair trade.

De-emphasis is a word that first appeared in Canada when certain retailers started an abortive revolt against the spreading distribution of certain class items into grocery stores.

An executive of J. L. Hudson Co. of Detroit recently made this policy statement. "Where an item is in good supply and has a wide distribution at cut prices, and we are not allowed by the manufacturer to meet those prices, that item cannot continue to be an important one to this business."

That means that fair trade items which are being generally cut by discount houses have been removed from customer view, and the merchandise is only produced when the customer specifically asks for it.

We have had a great many case histories of what can happen to merchandise when it is put out of sight in the retail store. One good example can be found by

CROWN SPRA-TAINER® Does It Again!

TURN SUN GLARE into SUN GLAMOR with the help of Dorothy Gray

Share your place in the sun with this convenient, dainty spray product. Permits safe, even tanning. Counteracts burning. Helps keep skin soft and smooth.

A pressure product of quality needs a quality package to sell it. That's why TANNING OIL ATOMIST is packed in the "Modern Design" and safe, seamless construction of SPRA-TAINER.

As the first lightweight, low cost propulsion can on the market, SPRA-TAINER was created, not adapted, expressly for the pressure packaging industry. Dependable performance plus unequalled value and sales appeal keep it in the lead. Similar distinction is reflected over a wide range of other finest quality cans in Crown's Complete Line. May we tell you about them?

Colognes by Dorothy Gray in Crown SPRA-TAINER

One of America's Largest Can Manufacturers

CROWN CAN DIVISION
CROWN CORK & SEAL COMPANY, INC.

PHILADELPHIA • CHICAGO • ORLANDO • NEW YORK • BALTIMORE • BOSTON • ST. LOUIS

asking for almost any of the heavily mass-advertised cosmetics at the cosmetic counter of a leading department store. There have been tests in grocery stores with the multiple-million-dollar, advertised soap brands, changing the position of the display, with dramatic and frightening fluctuations in sales.

There is also the well-remembered case history of the leading tooth paste manufacturer who fought fair trade when it was first introduced some years ago. It took about six months to make this tooth paster come running back to fair trade with his tail between his legs. De-emphasis, if ever seriously applied, as an individual action by any specific number of retailers, can upset many manufacturers and many millions of dollars in advertising.

Dismal Record

A leading market research expert comes up with a report that a new product has only one chance in five of succeeding. He calls this a dismal record. Wonder what he would think if he ever took a look at the cosmetic business.

Competition Can't Help

If anyone had told Charlie Revson three years ago that he would call on Hazel Bishop, Inc., for help, we are quite sure that his reaction would have reduced Donald Duck to a semblance of Snow White. And yet, strange as it may seem, this is exactly what has been happening.

It all began a little while ago when the Federal Trade Commission came out with a decision which threw a substantial monkey wrench into the carefully erected structure of Revlon's system of distribution in the beauty parlor trade.

Although Revlon's business in the beauty parlor is only a small percentage of its total business and although profits from this particular part of the trade are substantially less than its profits from an equal volume of business in retail stores, Revlon has always had a strong compulsion phobia in regard to the beauty parlor. This is because Revlon had its start in the beauty parlor and used it in a very effective way as a springboard for its entry into the retail trade. The early trade advertising of Revlon in BEAUTY FASHION, which had such a potent effect in building Revlon's distribution and giving it a preferred retail place, stressed very strongly the public education and the countrywide demonstration which Revlon nail enamel was securing through its nationwide application in the beauty parlor. Those who remember the early days in the Revlon business will recall that this company started with only a mediocre sum available for consumer advertising in a field—that is nail enamel—which was substantially more competitive than it is today. At this time the leading competitor was spending nearly a million dollars a year in consumer advertising, and at least five other competitors were each spending a hundred thousand dollars a year or more. Revlon convinced department-store management that the daily demonstration and application of Revlon nail enamel in the beauty parlors all over the United States was in effect an educational contact with the consumer that was the equivalent of a large, substantial advertising campaign.

In its recent decision, the Federal Trade Commission refused to accept Revlon's plea that its system of exclusive agreements with beauty supply jobbers was not a violation of the Clayton Act.

In appealing the decision of the FTC which placed a ban on this exclusive agreement, Revlon stated that Hazel Bishop, Inc., had successfully entered the lipstick and the nail polish business at the very time this case was under consideration and that it had built a strong position becoming a major competitor, thereby proving that this part of the industry is very competitive. In the opinion of the FTC, Hazel Bishop achieved this position because it was able to spend millions of dollars each year in advertising and was able to establish a complete jobbing center of its own from Coast to Coast.

According to Commissioner Gwynne, "The Clayton Act is concerned with helping small business. The fact that a company with a large advertising budget and an equally strong dealer organization is not foreclosed from the market does not remove the fact that several companies are denied access to a substantial part of the beauty - supply jobber market by respondent agreements."

The Commissioner further emphasized that the anti-trust laws made it necessary for them to take into consideration the situation of small companies which do not have sufficient resources to either spend millions of dollars for advertising or to establish such complete jobber setups of their own.

It might be remarked here, as an afterthought of our own, that the growing use of television for the products of our industry is attracting large operators from outside this industry who are seeking packaged products capable of mass distribution and mass consumption. These people have a formula of operation which is basically the availability of millions of dollars thrown into advertising and the ability to use a new mass-advertising media of tremendous potency in influencing public opinion. It is a matter of individual opinion as to whether these new influences will bring a constructive or a destructive influence to the industry they invade.

Color Fix

A tablet that has a coating of edible resins that "fixes" the colors so that they will resist transfer under extremes of heat and humidity conditions has been perfected by the Arner Company, Inc., Buffalo, New York. The new coating can be applied to sugar-coated tablets in any desired color. It gives color performance without changing the disintegration qualities of the tablet.

Office Cleansing Cream

A cleansing cream for the office worker to remove ink stains, smudges by carbon paper and other office smudges is being produced by Burroughs Corporation, manufacturer of business machines. This product produces a white foam applied without water to the hands. When the hands are wiped dry, according to Burroughs, they are cleaned without roughening, reddening or burning. The new cleaner went on sale last month in all the company's branch and service stores.

New Perfection

DROPPING PARTS

"Repeat-Sale Insurance" for Liquid Preparations

The New Perfection line of functionally designed dropping parts gives satisfaction where satisfaction counts—in the hands of the user. To make sure the customer's first reaction to your product is 100% favorable, specify New Perfection. Our rigid inspection system assures the cleanliness and uniform high quality of every shipment.

New Perfection dropping parts will fit your bottle or can be furnished in combination with our Modernistic bottles in Amber, Blue, Green or Clear glass. Bottle sizes—2 cc, ⅛, ¼, ½, 1 and 2 oz.

#1
Non-rolling, extra-depth Bakelite cap; thick flange rubber bulb; Saftee ball glass.

#3
Regular plastic cap; thin flange rubber bulb; semi-blunt glass.

#4
Metal cap; oil-resisting Amekine synthetic rubber bulb; blunt glass.

#5
Small size plastic cap; midget rubber bulb; regular straight glass.

Improved bottle shape. Designed to lie flat for convenient labeling. Front provides ample label space.

NEW PERFECTION DROPPER GLASSES

CALIBRATED

IN COLOR

This inexpensive extra adds welcome convenience to the use of your product. Accurate calibration in any color marks the specific dosage indicated. Your firm name or trade-mark may also be imprinted.

#2
Non-rolling, extra-depth Bakelite cap; thick flange rubber bulb; special bent glass (CALIBRATED IN COLOR).

IN ADDITION to NATURAL RUBBER BULBS for GENERAL USES, WE CAN ALSO SUPPLY

AMEKINE (OIL-RESISTING) Synthetic Rubber Bulbs

which are recommended for use with oil preparations, such as nose and ear drops and vitamin products. Even after long exposure to oil, Amekine closely retains its original shape and functions perfectly.

PENNSYLVANIA
GLASS PRODUCTS CO. INC.

"Glass Goods of the Better Kind"

430 N. CRAIG ST. • PITTSBURGH (13), PA., U.S.A.

Package Doin's . . .

Lilly Dache Hair Spray

Yardley Shaving Foam

Sardi Hand Cream

Winning Aerosol Packages

Pictured winners in the cosmetic industry of the Chemical Specialties Manufacturers Association aerosol contest of December 7 are:

Lilly Dache Invisible Net hair spray packaged in Spra-Tainer by the can division of Crown Cork & Seal Co., Inc., which won first place in the hair preparations class and was also judged the top package among 282 entries in the national contest.

Yardley Shaving Foam, Yardley of London, Inc.

Sardi Hand Cream, Walgreen Drug Stores.

Flexible Labels

Fleetwood Press, Inc. has developed a new flexible label for polyethylene or other containers made of flexible plastic or rubber. When the bottle is squeezed, the label contracts and returns to its original shape when the bottle is released.

These labels can be applied by conventional methods, requiring no change in equipment.

Metallized Closures

The closure and plastics division of the Owens-Illinois Glass Co. now has gold metallized closures which offer excellent resistance to abrasion and to the effects of alcohol and essential oils. These closures are particularly suitable for toiletry packages where originality and beauty in design have a direct influence on sales.

Gold is the most popular color, but metallized closures may be made with a silver finish or with a red, blue, amber or other color finish.

Although this is not an entirely new process, the company points out, refinements have been made in manufacturing techniques, including the development of an improved protective lacquer, which have resulted in making metallized closures available at reasonable cost to a broad market.

Automatic Bow Tyer

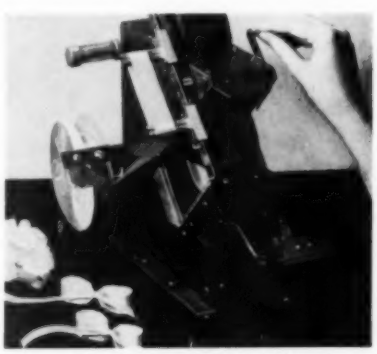
Minnesota Mining & Manufacturing Co. has announced a new, precision-built bowtyer that "cranks out" prefabricated bows for decorative gift wrapping at speeds faster than 2½ bows a minute.

Called the S-10 "Magic Bow" Tyer, the new all-metal unit is intended for retailer use in forming basic pre-fab hanks for more than 100 bow variations, plus ready-to-use carnation bows from "Sasheen" or "Decorette" brand ribbons.

The tyer can be adjusted for any size bow from two to eight inches in diameter and can accommodate ribbons from 7/16" to 1½" in width.

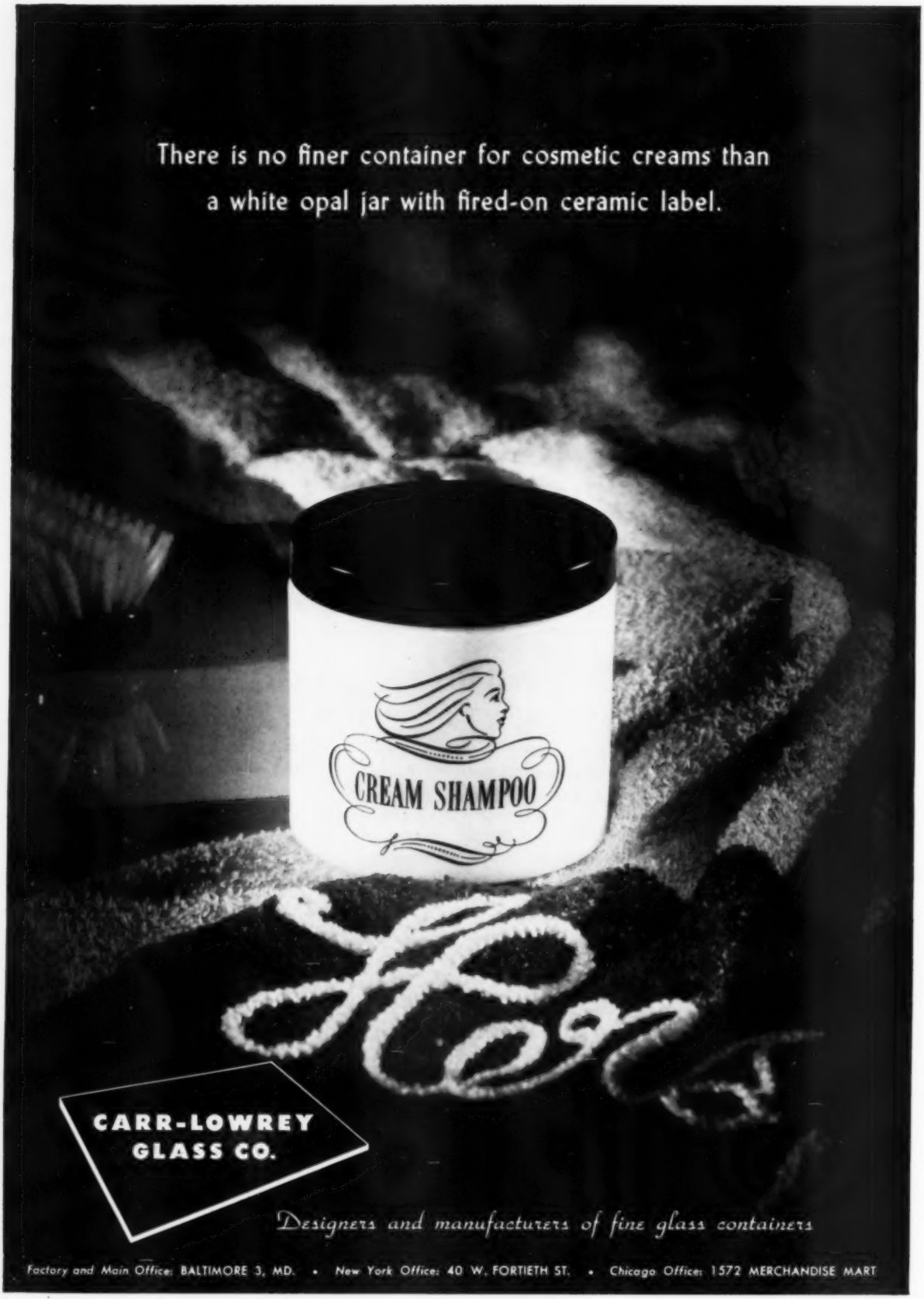
Ronor Aerosol Package

The Ronor Corp., division of the Engine Parts Manufacturing Co., 1360 W. 9th St., Cleveland, has a new package for aerosol dispensing which can be adapted to any aerosol product where the size is proper and applicable. The picture shows a perfume container made of aluminum covered with a lacquer finish. These Ronor packages are available in sizes ranged from less than one ounce to three ounces, net contents; in various shapes—square, rectangular, bottle and others; and in a variety of colors and characters of coating and decoration.



Minnesota Mining Bow Tyer

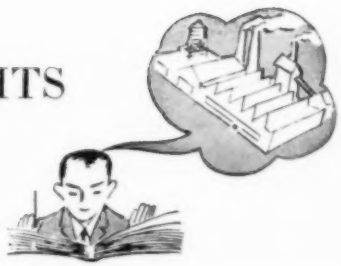
Ronor Aerosol for Perfume


There is no finer container for cosmetic creams than
a white opal jar with fired-on ceramic label.
CREAM SHAMPOO
CARR-LOWREY
GLASS CO.
Designers and manufacturers of fine glass containers
Factory and Main Office: BALTIMORE 3, MD. • New York Office: 40 W. FORTIETH ST. • Chicago Office: 1572 MERCHANDISE MART

Patent THOUGHTS AND TRENDS

*by Thomas Cifelli, Jr.**

PATENT ATTORNEY



Highlights of This Month

1. A discussion of "trade-marks" that do not build good will;

2. A brief summary of what is presently known publicly about the status of the tetracycline and the pressurized shaving cream patent situation; and

3. A summary of recent patents dealing with dermatologically harmless hair-dyeing creams, a topical remedy derived from western sagebrush, and an improvement in the organic chemists' tool involving chloromethylation.

Few "Trade-Marks" Build Good-Will

If the reader passes over the quotation marks in the above title, he will probably conclude that the writer has gone "off his beam," or at least has finally decided to give up trade-mark practice. Regarding the first deduction, no comment is made here but the second is fairly incorrect, there being five people in the writer's family who have the money-requiring habit of eating, among other things.

This seemingly-facetious manner of introducing the subject is merely to gain attention to it. The fact of the matter is that the writer feels very strongly that a lot of money and effort is literally wasted on so-called "trade-marks." To make matters worse, the money and effort expended on such marks is not merely wasted, in the writer's view, but it does a lot of damage.

Let us consider just a few angles of this situation:

Just about everyone knows that a trade-mark is primarily intended to tell the buyer that the goods come from a certain source. The buyer very often doesn't know, nor for that matter care, as to the exact identity of the source. He is only interested in getting the same product that has previously given him satisfaction. In this sense trade-marks are very valuable, both to the buyer and seller, and are said to build good-will.

Unfortunately, however, many sellers seem bent on using as trade-marks terms or words which are not in fact proper trade-marks, but are merely descriptive terms or words *as applied to the goods*. It is not believed necessary to give any specific examples of words or terms which would be descriptive of the goods to which they are applied, other than one or two which are so obvious that it is doubtful if anybody would have the temerity to use them. Examples of such terms would be LEATHER for shoes; WOOL for clothes; SILK for dresses; etc. While such obviously descriptive marks have never been used, to the knowledge of the writer, it is nevertheless true that a great number of not-so-obviously descriptive marks have been and are being coined. The August 1954, issue of This Journal contained a long list of such marks which have been held to be descriptive as applied to the goods to which the marks referred.

When the situation is presented in the foregoing light one naturally wonders why anyone would knowingly adopt a descriptive mark as a trade-mark. On the basis of the writer's experience he would say that the two main reasons advanced by creators of "trade-marks" are (1) practical considerations and (2) such marks help sales. Perhaps it would help clarify the situation if we took a brief look at a hypothetical but nevertheless rather typical situation.

Company A has developed a new product and wants to market it. For obvious reasons it would like to find a trade-mark so as to facilitate marketing of the product and create a repeat demand for it by the public. The approach at this point is usually from the sales and advertising angles. The sales department naturally wants a term which will help sales and the advertising department wants a term which will permit the copywriter to build his copy around a catchy theme. What is more natural than to call the product what it really is or call it something which represents what the product does? A "trade-mark" is thus born. Everybody is happy and labels are made and advertising placed. *Then* someone decides that the "trade-mark" is so good that it will induce "on-the-spot" purchases and therefore "we should keep our competitors from using the mark." A trade-mark attorney is then consulted and told to obtain registration of the mark. The trade-mark attorney, being isolated from the business world, living as he does in an ivory tower, immediately makes himself quite unpopular with everybody by suggesting that the mark does not lend itself to registrability, at least not right away. He points out that while such marks can be registered it is necessary to show that they have become distinctive of the goods of the particular company A, but this takes time. Furthermore, if the trade-mark attorney really wants to dig his grave even deeper, he suggests that the mark, whether registered or not, is inherently a weak one and could easily be copied—if not in exact form, at least with a minor change or two.

Company A has by this time irrevocably committed itself to the "trade-mark" by reason of its expenditures for labels, advertising, etc. (and truth to tell, by reason of a certain pride of ownership which many have in their coined marks).

Time passes on and either one of two things happens. The product may fail and the matter is forgotten. The second alternative, which sometimes happens, is that the product meets with success. Competitors then enter the picture and very often not only copy the product but employ very similar names as trade-marks. By this time the trade-mark attorney may have succeeded in obtaining registration of the mark and he is instructed to stop the infringement of the "trade-mark." If he finds the situation to be a typical one, he will generally find that the competitor has

*Newark, New Jersey.

made a minor change or two in the mark sufficiently so as to avoid infringement.

The net result of this experience with "trade-marks" is that company A has wasted a lot of money on a mark of inherent weakness and instead of building up good-will with its buyers, the public, it has merely contributed to a situation, where joined by its competitors, so many similar "trade-marks" have been coined that the public is confused. Under such conditions no reputable seller gains.

Companies which are trade-mark conscious of course do not make the errors indicated. They have trained advertising and sales personnel, wise to the ways of trade-mark law and capable of coining fanciful, arbitrary marks of great inherent trade-mark value. Unfortunately, the errors indicated above are being committed all the time by those least able financially and otherwise to bear the consequences: young or small companies.

Tetracycline and Pressurized Shaving Cream Patent Battles Unsettled

As of the date of this writing nothing is publicly known concerning the status of the alleged patent interference proceeding in the U. S. Patent Office involving Lederle, Bristol and Pfizer, but it is known that the Carter Products patent U. S. 2655480, covering pressurized shaving creams, etc. has been the subject of a whole month's trial in the Federal Court in Baltimore, the main contestants being Carter Products on one side and Colgate on the other.

Insofar as the tetracycline battle between the drug companies is concerned no information comes from the U. S. Patent Office as such proceedings are kept secret. However, *The Wall Street Journal*, in its December 3, 1954, issue, devoted considerable space to this battle. Pfizer was quoted as having announced that Lederle and Bristol had been "dismissed" from the "Interference." Bristol spokesmen were reported as having replied that "Pfizer" was also removed from the "Interference."

If these quoted statements are correct it would appear that the Patent Office has dissolved the Interference. In such event each of the contender's patent applications will go back to the Primary Examiner for further action. If the U. S. Patent Office refuses to issue a patent to anyone on tetracycline, Lederle's patent on aureomycin, (U. S. 2482055) assumes special importance as regards tetracycline in view of the reported contention by Lederle that Bristol's method of making tetracycline involves the production of aureomycin and hence is a violation of Lederle's patent rights.

Normally in the drug field its patent controversies are settled quite amicably by patent counsel. The tetracycline patent battle is certainly not following the usual script.

Dermatologically Harmless Hair-Dyeing Creams

These creams are the subject of a recent patent, U. S. 2695239, issued to a French inventor. The creams are the direct hair dyeing type and are said to be resistant to any shampooing however strong it may be. Dyeing agents which normally present only a little affinity with the hair keratin can be used according to the inventor.

Examples of alkaline, acidic, and neutral creams, taken from the patent follow:

EXAMPLE I

Alkaline dyeing cream for dyeing agents acting in an alkaline medium:

Carrying cream: emulsifiable glycol stearate	10
Wetting agent: sulfonated lauryl alcohol	1
Dyeing agent: rhodamine	4
Treatment products:	
Cholesterol	.1
Lecithin	.1
Ammonia 22° Baume (20% solution)	5
Perfume	.5
Water	79.3

EXAMPLE II

Acidic cream for dyes acting in an acidic medium:

Carrying cream:	
Glycerine monostearate	10
Sapamine base	2
Wetting agent: "Nekal BX" (dibutyl naphthalene sodium sulfonate	1
Dyeing agent: "Lawsone" (naphthoquinone)	2
Treatment products:	
Cholesterol	.1
Lecithin	.1
Acetic acid	1
Perfume	.5
Water	83.3

EXAMPLE III

Neutral cream for dyes acting in a neutral medium:

Carrying cream:	
Emulsifiable glycol stearate	10
Glycol	3
Wetting agent: sulfonated lauryl acid	.5
Dyeing agent: nitrated picramic acid	.2
Treatment products:	
Cholesterol	.1
Lecithin	.1
Ammonium acetate	.2
Perfume	2
Water	83.9

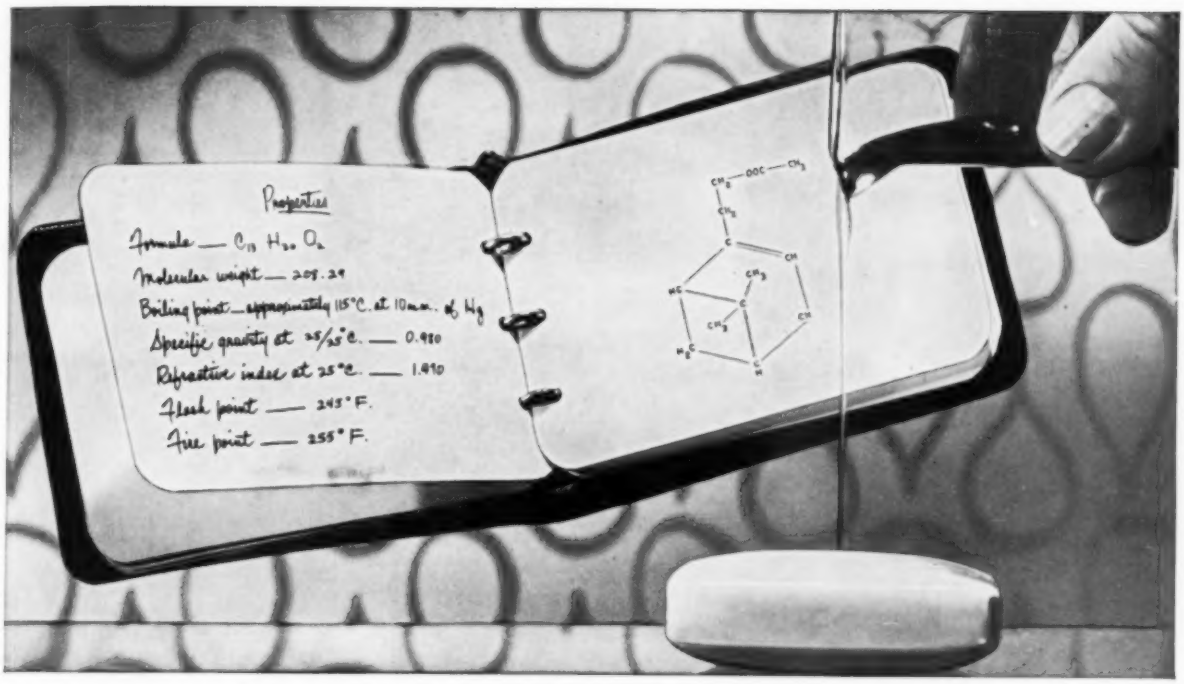
Medicinals from Sagebrush

Albert Sherman, a New Mexico inventor, has found a use for the western sagebrush other than as a prop in western movies and songs. In U. S. Patent 2697060, Mr. Sherman says that "the essential oil derived by steam distillation of the leaves and twigs of the stunted shrubs indigenous to the arid plains and mountains of the western United States, collectively known as western sagebrush is an active medicinal in the treatment of the human mucosa or mucous membrane and the skin. Extensive clinical testing has demonstrated that it is efficacious in the treatment of the inflammatory condition of the human dental gums or gingivae, generally known as gingivitis and thereby aids in the prevention of pyorrhoea alveolaris ('Riggs' disease), which are reflected by a tendency of the gingivae to become soft and spongy and to bleed readily. This work has shown that three or four daily applications of this essential oil to the gingivae will clear up even advanced cases of gingivitis in three or four days. Furthermore, this testing has shown that its periodic application thereafter will prevent the reappearance of gingivitis and maintain the gingivae in their normal healthy condition." In order to make the essential oil more pleasant to the patient and more efficient, it is incorporated in an emulsion which contains a masking flavor or perfume also.

Examples are given for formulating tooth pastes, mouth washes, cold cream and vanishing cream from the sagebrush oil.

Chloromethylation Process

In organic synthesis it is often desirable to add an aldehyde group to a compound. This is done many times by chloromethylating the compound and then converting the chloromethyl group to an aldehyde group in known manner. If desired, the chloromethyl group can be reacted so as to substitute the chlorine with other radicals. Chloromethylation of veratrole has not given satisfactory results, higher condensed ring systems being formed, thereby reducing the yield of the desired veratryl chloride. A German inventor, Dengel, has obtained U. S. Patent 2695319 on what is asserted to be an improved method of chloromethylating veratrole. In Dengel's patented modification, formaldehyde and gaseous hydrogen chloride are continuously supplied to a solution of veratrole in an organic solvent, said solution having been saturated with gaseous hydrogen chloride prior to the reaction. Yields of 90 per cent are claimed for this process.


Properties
Formula — $C_{11}H_{20}O_2$
Molecular weight — 208.29
Boiling point — approximately 115°C. at 10 mm. of Hg
Specific gravity at 25/25°C. — 0.880
Refractive index at 25°C. — 1.430
Flash point — 245°F.
Fire point — 255°F.

CITROVIOL

(Nopyl Acetate, DOW)

A low-cost base ingredient for your Bergamot, Jasmin, Lavender and Neroli type soap perfumes

The low price of Citroviol (Nopyl Acetate, Dow) now enables you to scent inexpensive soaps in a manner heretofore possible only in the luxury market. As an intensifier, Citroviol gives an unusual naturalness to the basic odor and provides a deep, full-bodied effect.

A practically colorless liquid, Citroviol is somewhat reminiscent of Linalyl Acetate. It replaces Linalyl Acetate in many applications, offering more stability and providing a sweeter, deeper effect.

Citroviol is entirely a domestic product—therefore its price is stable and not affected by the usual fluctuations of foreign markets.

Write Dow today on your company letterhead for complete information and an experimental sample of Citroviol. Find out how this versatile new product can serve you as an important foundation for many new approaches to soap perfumery. THE DOW CHEMICAL COMPANY, Midland, Michigan. Dept AR 384C

you can depend on DOW AROMATICS

DOW

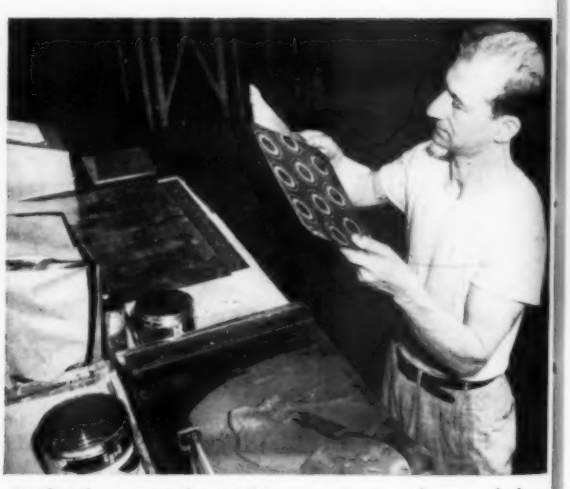
Don't buy closures by guesswork—

when it's so easy to have our technicians help you select one that's exactly right for your product

CLOSURES play an important role in the sale and resale of your product. They must be efficient . . . they must be convenient to use . . . they must be economical. So you must select yours with care.

Finding new and better lining materials for your product calls for evaluation under rigidly controlled storage conditions such as are provided by this humidity control cabinet.

Another control test with the precision penetrometer measures the hardness of waxes and other liner materials for closures.



Packaging as a sales tool is more important than ever before. Cap designs can actually help a product's sales. Here, careful matching of inks assures you bright, colorful closure designs.

Careful and rigid inspection of liner and cap is one of the many steps Owens-Illinois takes to produce better, fully controlled quality.

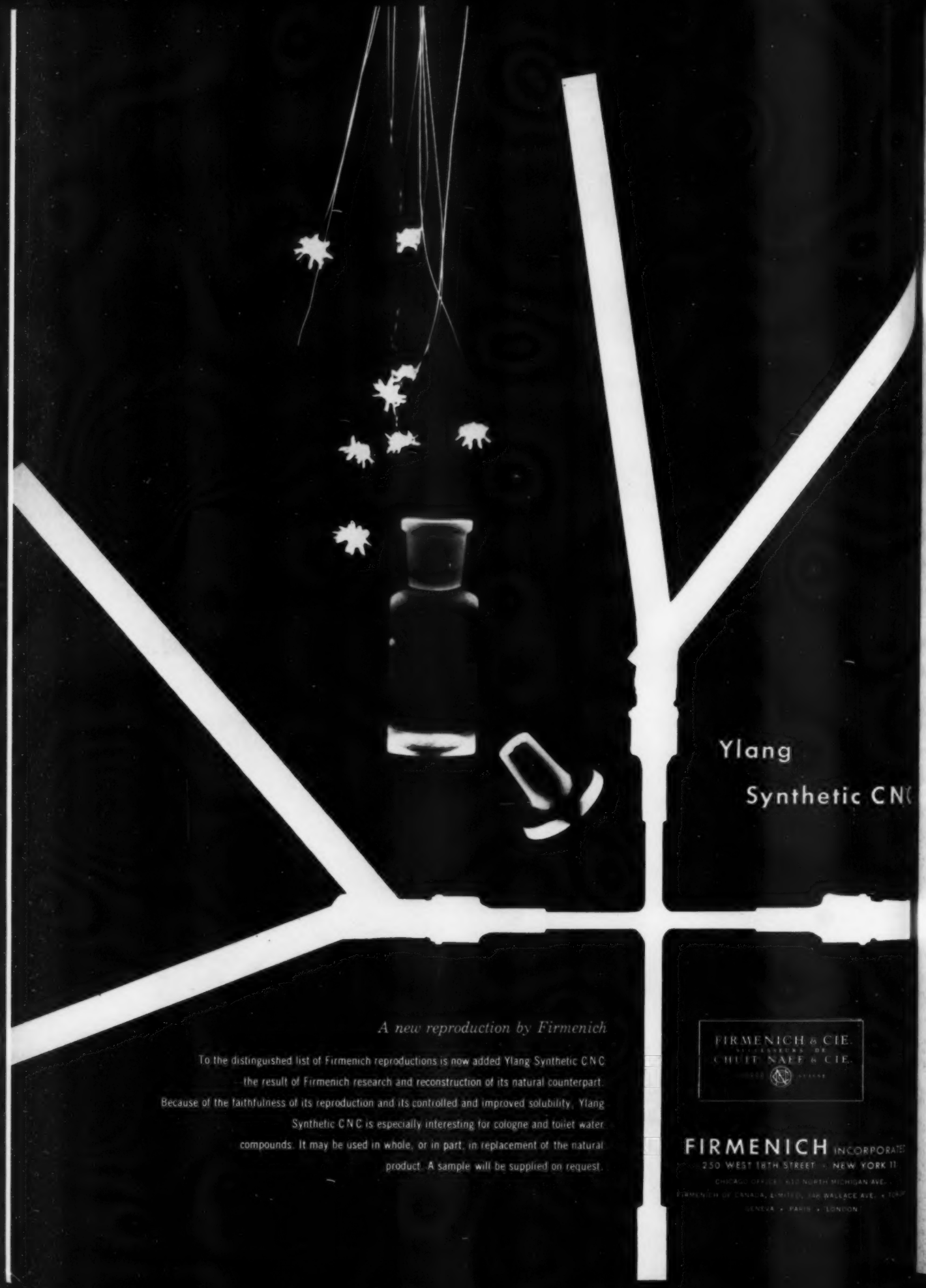
ever before.
Here, careful
ure designs.

BEFORE—This package lacks the final touch of good grooming from "head to foot." Something's needed to give it that extra sell appeal.

AFTER—Salespackage that's dressed to sell. See what a big difference a little change makes. Smart CLOSURE—label combination attracts instant attention.

METAL AND PLASTIC CLOSURES
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO



A new reproduction by Firmenich

To the distinguished list of Firmenich reproductions is now added Ylang Synthetic CNC the result of Firmenich research and reconstruction of its natural counterpart. Because of the faithfulness of its reproduction and its controlled and improved solubility, Ylang Synthetic CNC is especially interesting for cologne and toilet water compounds. It may be used in whole, or in part, in replacement of the natural product. A sample will be supplied on request.

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NEWS...

Cawley, Pres., Luft Co.

John A. Cawley has been elected president, chief executive office, and a member of the board of directors of the George W. Luft Co. For the past 16 years he has been associated with Miles Laboratories, from which he resigned to accept his new post.

Constance Luft Huhn, formerly president of the Luft Co., has become chairman of the board, while Harry A. Haus is resigning as vice-president and may serve as consultant.

JOHN A. CAWLEY

Hazel-Atlas Appointments

Robert G. Schaaf has been appointed manager of the cosmetic, drug and specialty container sales department, Hazel-Atlas Glass Co., while William T. Otto has become manager of the company's glassware sales department, and Jack Hendrickson, manager of the general container sales department. They will all be located at the general office in Wheeling, W. Va.

These men, who have had long association with Hazel-Atlas, succeed, respectively, J. H. Majesky, J. Nelson McNash and J. C. Neuhart who were each recently elected vice-president of sales in charge of the company's overall sales activity.

Kreps Promoted by Crown Can

F. Stanley Kreps has been promoted to regional sales manager for the Metropolitan New York and New England areas, according to Robert F. Duemler, division vice-president in charge of sales, Crown Can division, Crown Cork & Seal Co.

His former position, New York district sales manager, has been filled by Oliver W. Holmes who had previously been with American Pamcor, Inc.

Execs. Promoted by Merck

Henry W. Gadsden has been named vice-president of Merck & Co., Inc., reporting directly to James J. Kerrigan, president. At the same time, John G. Bill was appointed vice-president and general manager of the Sharp & Dohme division, according to William L. Dempsey, Sharp & Dohme president.

Mr. Gadsden joined the sales research department of Sharp & Dohme in 1937, becoming assistant to the executive vice-president in 1939. Following the war he returned to the company as director of pharmaceutical production in 1946. He was elected vice-president of the firm in 1949.

HENRY W. GADSDEN

Mr. Bill joined Sharp & Dohme in 1925 as a sales representative in the New England district and became assistant to the general sales director, Philadelphia, in 1937. He was appointed director of the wholesale division in 1940 and received subsequent promotions during the next few years, becoming vice-president in 1949.

Birnbaum with Wells Labs.

Herman A. Birnbaum, formerly in charge of technical sales services for the microbiological laboratory of Nuodex Products Co., has been appointed head of the microbiological department of Wells Laboratories, according to Dr. Saul Frances, director. He will specialize in research problems concerning biological deterioration, preservation and disinfection.

Lederle Traffic Supervisor

Lars M. Roos, formerly assistant department head, has been named division traffic supervisor for Lederle Laboratories division, American Cyanamid Co., succeeding A. J. Edgar who died October 29. He will also control traffic for the animal feed products of the fine chemicals division of Cyanamid.

Cosmetic Career Women Meet

The Cosmetic Career Women held their second luncheon meeting on November 30 at the Waldorf-Astoria Hotel, New York, with about 100 members and guests attending. Guest speaker was Lieutenant Francina Stonesifer of the United States Navy, in charge of Wave Officer Recruiting in the New York area. She was introduced by Clarice Mills Garland of Colgate-Palmolive Co., a member of the executive committee.

Peg Burrow, Oxzyn Co., opened the meeting and introduced the members of the general committee, while Annabelle Farrell, Emery Industries, Inc., closed it.

JOHN G. BILL

Van Patten Retires, Roche

Guy V. Van Patten, one of the charter members of Hoffmann - La Roche's vitamin division field staff, retired December 1, according to Paul J. Cardinal, vice-president, and C. C. Robinson, sales manager of the division.

He will be succeeded in the Minneapolis area by H. Gilmore Walter; in Iowa by J. C. Lamping, Jr.; and in the Chicago region, by Stanley T. Olds.

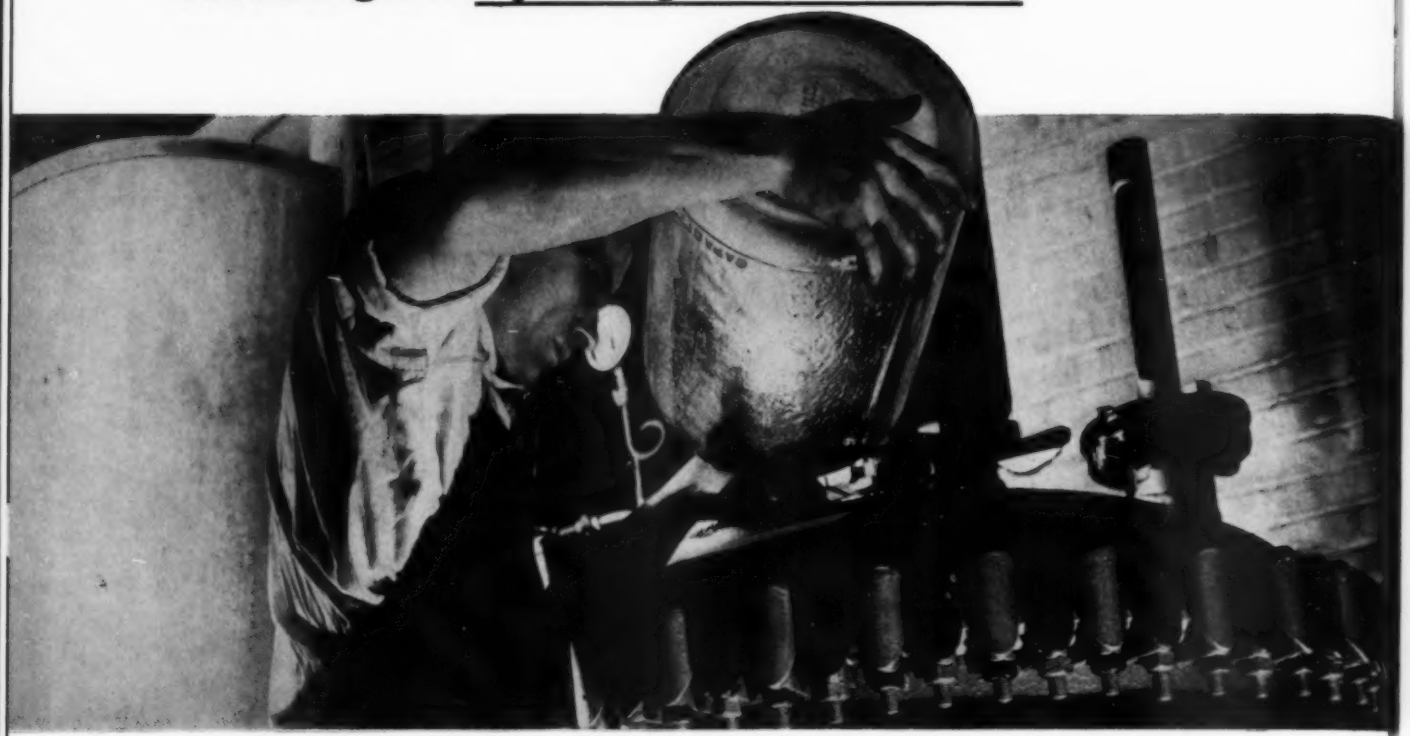
Mr. Walter will continue to maintain his headquarters in Kansas City and be responsible for Roche bulk vitamin business in Kansas, Nebraska, the Dakotas, Oklahoma, Wyoming, Colorado, New Mexico, Utah and Arizona.

Mr. Lamping will continue to be responsible for vitamin division work in all of Wisconsin and part of Chicago and northern Illinois.

Givaudan Party

Givaudan-Delawanna, Inc. held its annual Fall reception and cocktail party on November 18 at the University Club. The affair coincided with a visit to America of Andre Givaudan and was attended by more than 300 members of the perfume, cosmetic and allied industries.

You get extra value in basic materials when you specify GIVAUDAN



Cetyl Alcohol and Deltyl®, for example,

are two Givaudan materials that offer special advantages to the cosmetic chemist.

Givaudan's CETYL ALCOHOL, thanks to its unmatched fineness, imparts a soft, velvety texture to the skin when used in creams, and a superior emollient character in lipsticks, shaving creams and other cosmetics.

DELTYL, an excellent solvent, may be used as partial or complete replacement of mineral or vegetable oils, with the advantage of greater stability. We will gladly send you samples and further information on these exceptionally fine ingredients.

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FRANK H. FOX

Fox Appointed by Klinker

Frank H. Fox has become vice-president and secretary of Klinker Manufacturing Co. and, according to Leon G. Weil, president, will take charge of a new, enlarged sales and production program now under way. Mr. Fox, in the sales promotion field for more than 20 years, and sales manager of a major manufacturing firm in the women's field for over 10 years, he brings many new marketing ideals for retail selling to Klinker.

Treacy, Merck Sales Director

Thomas J. Treacy, director of sales service, has been appointed to the new position of director of sales and marketing of the chemical division, Merck & Co., according to William H. McLean, vice-president and general manager. He will be responsible for administering the activities of the division's marketing areas.

Represents Chaleyer in Japan

Yoshi Ikeda, formerly sales manager of the aromatic division of W. C. Strachan & Co. Ltd., Yokohama, has been appointed sole agent for Ph. Chaleyer, Inc., in Japan. He has been engaged in essential oils and aromatics for over 40 years.

Fragrance Found. Plans

The Fragrance Foundation formed a Committee on New Ideas at its board of directors meeting on December 6, according to H. Gregory Thomas, president, who announced a "new look" for COUNTER POINTS, the Foundation's educational sales training bulletin. Beginning with the February, 1955, issue, *Beauty Fashion* Magazine will publish Counter Points as regular monthly feature in the form of an editorial page. "Fragrance Counter Points," as it will be known, will be written by the Foundation's executive director, Kay Jamesson and will be incorporated into the magazine's new sales promotion package for cosmetics and fragrances.

This monthly feature will replace the quarterly sales training bulletin formerly sent directly to department, specialty and drug-store toilet goods buyers.

J. I. Poses, chairman of the Committee on New Ideas, has named the following men to serve with him: Edouard Cournand, Lanvin Parfums; Pierre Harang, Houbigant Sales Corp.; Jack Mohr, Lentheric, Inc.; Russel Rooks, Avon Products; and Samuel Rubin, Faberge, Inc.

Schalk Appointed by Lederle

C. L. Schalk has been appointed assistant regional manager for Lederle Laboratories division, American Cyanamid Co., with headquarters in New Orleans. He succeeds Maxwell James who was recently promoted to the position of manager of wholesale sales for the entire Lederle organization. Mr. Schalk had previously been district manager for a five-state sales area embracing North and South Dakota and portions of Wisconsin, Montana and Michigan, and the entire state of Minnesota.

DR. LOREN M. LONG

Rieveschl Promoted by P-D

Dr. George Rieveschl, Jr., director of chemical research, Parke, Davis & Co., has been promoted to the new post of scientific assistant to the president, according to Harry J. Loynd, president.

Dr. Loren M. Long, assistant director of chemical research since April, succeeds Dr. Rieveschl in his former position.

Richter Heads White Metal

Hubert Richter, vice-president and treasurer, has been elected president of White Metal Manufacturing Co., succeeding Stanley M. Rumbough, Sr., who is now chairman of the board.

Mr. Richter has been identified with the manufacture of collapsible tubes in America since 1913. His father, Gustav Richter, founded the first collapsible tube factory in Germany in 1879—Metallindustrie Richter, Karlsruhe - Rheinhafen—of which Hubert Richter is a director.

Appointed by Merck

Dr. Robert H. Denkewalter, director of process development, Merck & Co., has been appointed director of process research and development of the firm's chemical division.

Tenth annual dinner of Society of Cosmetic Chemists, December 9, at Hotel Biltmore, New York, which was given in honor of William A. Poucher, winner of 7th Medal Award. Mr. Poucher flew from England and back over the North Pole Route.

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CINCINNATI 2 DETROIT • DALLAS • MEMPHIS • NEW ORLEANS 12
ST. LOUIS 2 SAN FRANCISCO 7 • SAN BERNARDINO
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PRODUCTOS Y LABORATORIOS FLORASYNTH, S.A. MEXICO 11, D.F.

Ayer Buys Milkmaid

Harriet Hubbard Ayer, Inc., a division of the Nestle-LeMur Co., has acquired the Milkmaid Co., manufacturer and distributor of cosmetics and beauty preparations, according to Louis Naidech, executive vice-president of Nestle.

Milkmaid will be a wholly owned subsidiary of Ayer. The company's products will be manufactured in the Ayer plan and distributed through department stores and better drug stores.

New offices of Milkmaid are located at 902 Broadway, New York 10.

Vaccaro, V.P., Witco

Michael D. Vaccaro, formerly eastern sales manager, has been elected vice-president in charge of eastern sales of Witco Chemical Co.

Fritzsche Sales Conference

Fritzsche Brothers, Inc., completed its annual week-long sales conference on December 10 with a cocktail party, buffet supper and dance at the Sherry-Netherlands Hotel. President John H. Montgomery welcomed the men at the opening session on December 7 and was present at all the other meetings. Frederick H. Leonhardt, chairman of the board, also greeted them and met with them each day for cocktails and luncheon.

During two afternoons, the out-of-town representatives were shown the company's recently acquired facilities which take in 20,000 additional square feet of floor space on the 13th floor of the company's headquarters in the Port Authority Building. The entire perfume and technical division with its personnel, and four modern, new laboratories have been transferred from the 12th floor to this new location.

DR. BRADFORD N. CRAVER

Craver with Squibb Institute

Dr. Bradford N. Craver, formerly with Johnson & Johnson, has been appointed director of the division of pharmacology at the Squibb Institute for Medical Research.

CHARLES O. ELSON

Walgreen Promotions

Charles O. Elson, formerly Walgreen buyer of paper goods, printing and containers, has become buyer of drugs, proprietaries and pharmaceuticals, succeeding Joseph H. Trienens who retired because of ill health.

Wallace B. Daughtry, formerly assistant to Mr. Elson, now succeeds him in his former position.

Pauley, Pres., Assoc. Drug

Gerald F. Pauley of Monsanto Chemical Co.'s organic chemicals division was elected president of the Associated drug & Chemical Industries of Missouri at the annual business meeting on December 8.

Additional officers elected for 1955 were Joseph W. Wise, Grove Laboratories, Inc., first vice-president; Alvin L. Saeks, Puro Co., Inc., second vice-president; E. Ted Mann, the Dow Chemical Co., third vice-president; S. C. Gansner, Cole Chemical Co., secretary; and J. Louis Lanz, manufacturers' agent, treasurer.

Newly elected members of the executive committee are I. W. Kurtz, Blue Line Chemical Co.; James E. Montgomery, U. S. Industrial Chemicals, Inc.; Leo G. Peck, Peck's Products Co.; Dr. George F. Reddish, Lambert Pharmacal Co.; G. Kenneth Robins, G. S. Robins & Co.; and K. L. Simpson, Missouri Solvents & Chemicals Co.

Toni Promotions

Joseph Salganik, former eastern region manager of the Toni Co., has been appointed to the new post of field sales manager, in one of the biggest staff expansions in the history of the company's sales organizations. Seventeen other men received promotions at the same time. Under this expansion, the company now has three main sales regions in the United States, with Robert Bruant heading the eastern area; Paul Skillman, the western territory; and Robsert Wieringa, the new central region.

Artra, Div. of Union Pharm.

Artra Cosmetics, Inc., has become a division of Union Pharmaceutical Co., according to Max A. McDaniel, vice-president and general manager of Union.

Fritzsche Brothers' annual cocktail party, buffet supper and dance on December 10 in Crystal Pavilion and Carnaval Room, Sherry-Netherlands Hotel, New York. Celebration was arranged by company for visiting sales representatives, executives and department heads, and their wives.

One of these

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...may help you make a GOOD product BETTER

The Heyden products listed here have long been recognized for their high purity and uniformity by production and research men in the drug, pharmaceutical and process industries. One of these chemicals may be the intermediate you need to give your product better quality and sales appeal. Samples and further information are available upon request.

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Glycerophosphates
Guaiacols
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FINE HEYDEN CHEMICALS

Stanolind Contract with Greeff

Stanolind Oil and Gas Co. has signed an exclusive contract with R. W. Greeff & Co. for marketing the production of chemicals from Stanolind's chemical plant at Brownsville, Texas, according to E. F. Bullard, president. The plant is expected to begin operations in the Fall of 1955.

Greeff will act as Stanolind's sales agent for all of the water-soluble chemicals—acids, alcohols, aldehydes and ketones—that will be produced at Brownsville. These chemicals to be produced there originate as by-products of the hydrocarbon synthesis process employed in the Carthage Hydrocol, Inc., gas synthesis plant at Brownsville.

These water-soluble chemicals will include methanol, ethanol, n-propanol, iso-propanol, n-butanol, iso-butanol, pentanol, acetaldehyde, propionaldehyde, acetone, methyl ethyl ketone, methyl n-propyl ketone, methyl n-butyl ketone, acetic acid and propionic acid.

The alcohols will comprise about 55 per cent of the plant production, acids, 22 per cent; ketones, 16 per cent; and aldehydes, seven per cent.

Lenher, Pres., SOCMA

Samuel Lenher, assistant general manager of the organic chemicals department, E. I. du Pont de Nemours & Co., was elected president of the Synthetic Organic Chemical Manufacturers Association at that organization's 33rd annual meeting on December 6 at the Hotel Commodore, New York City.

Ellis, Exec. V.P. of CSC

Sydney T. Ellis, formerly administrative vice-president, has been named executive vice-president of Commercial Solvents Corp., according to J. Albert Woods, president.

SYDNEY T. ELLIS

Among those attending Givaudan cocktail party on November 18, left to right: P. Bouillette and E. R. Durrer, Givaudan-Delawanna; H. Gregory Thomas, Chanel, Inc., Dr. D. H. Powers, Richard Hudnut; Andre Givaudan; and Benson Storfer, Parfums Corday.

Hurley Transferred by Upjohn

S. P. Hurley has become head of a new veterinary sales department of the Upjohn Co., according to W. F. Allen, vice-president and director of sales. Previously in the company's Boston branch, he will now make his headquarters in the company's home office in Kalamazoo.

Tishler, V.P., Merck

Dr. Max Tishler has been appointed vice-president for scientific activities of the chemical division, Merck & Co., succeeding Dr. Per K. Frolich who resigned to accept an appointment to the top civilian scientific post in the Chemical Corps. He will be responsible for the research, development, medical and chemical control activities of the company's chemical division and will coordinate the activities of the Merck Institute for Therapeutic Research with those of the division.

Dr. Tishler joined Merck in 1937 as a senior chemist, and was subsequently appointed assistant director in 1941 and director, developmental research, in 1945, and director of process research and development in 1953.

MAX TISHLER

W&T Buys Maltbie Labs.

Wallace & Tiernan Inc. has completed negotiations for the acquisition of Maltbie Laboratories, according to F. G. Merckel, president. Maltbie stockholders will receive three shares of Wallace & Tiernan stock for each share of the former.

Maltbie Laboratories started business in Buffalo in 1888 as a physicians' supply house and was incorporated in 1906 when it moved to New Jersey. The company's volume in the ethical drug field is at present about equal to that of Wallace & Tiernan.

Mr. Merckel stated that the combination would permit some savings in operations and would strengthen the Wallace & Tiernan position in the drug field.

D&R Buys Primrose House

Daggett & Ramsdell, Inc., has taken over the manufacture, sale and distribution of Primrose House cosmetics. Primrose House products will continue to be available in their present packaging, although Daggett & Ramsdell will service the accounts.

Flett Retires, Nat. Aniline

Lawrence H. Flett, with National Aniline division of Allied Chemical & Dye Corp. for 35 years, retired December 31 from full-time active service for reasons of health. He has been director of National's new products division for the past 12 years and, prior to that, served in various capacities in research and operations. He will continue to serve the company as a consultant.

Mr. Flett holds about 75 patents in the field of chemistry and is the author of a large number of publications and co-author of a number of books.

L. H. ZAHN

Zahn Heads Drug Committee

L. H. Zahn, manager of methods and package development division of Ciba Pharmaceutical Products, Inc., has been elected chairman of the Drug and Pharmaceutical Committee of the Packaging Institute. He is also chairman of the product division of the Technical Operations Committee.

The next meeting of the Drug and Pharmaceutical Committee will take place on February 28 and March 1, with the Corning Glass Works as host.

Max Factor Sales Meeting

The annual sales meeting of Max Factor was held in Chicago on December 4 and 5, with 110 of the comany's sales representatives, officers, directors and other executives present, in addition to Davis Factor, board chairman, and Max Firestein, executive vice-president. The affair was presided over by Maurice R. Chez, president of Sales Builders, Inc., Factor's United States sales and distributing organization. He was assisted by his six sales managers: Lee Rosene, Ben Gilmore, Joe Gabriel, Mickie Steiger, Al Rubin and Fred Hansen.

The two-day meeting, highlighted by a preview of Max Factor advertising, sales promotion and merchandising aids for 1955, also featured a series of dynamic presentations covering all phases of the company's forthcoming advertising and sales program.

New Officers for Cos. Chems.

The following new officers for 1955 were installed at the November meeting of the Chicago Chapter of the Society of Cosmetic Chemists: William E. Lieb, Allen B. Wrisley Co., as chairman; Sylvia Kramer, Marcelle Cosmetics, Inc., chairman elect; Seymour Kornblau, Lady Esther, Ltd., secretary; and Peter Parker, Kolar Laboratories, treasurer.

HENRY P. VAN AMERINGEN

H. van Ameringen Joins Firm

Henry P. van Ameringen has joined the firm of van Ameringen-Haebler, Inc. and will give particular attention to creative work in fragrances. The son of A. L. van Ameringen, company president, he has served with van Ameringen-Haebler, S.A.R.L., the French subsidiary of the New York company. He has also worked in the firm's factories and laboratories, both in the United States and France.

Van Ameringen Expansion

Van-Ameringen-Haebler, Inc., has completed expansion of its New York facilities. The 30,000-square-foot increase in floor space was made necessary, according to Charles P. Walker, executive vice-president, by the growing activities of the company's industrial division and export department, plus a general increase in business.

In addition, there is a larger aerosol-testing laboratory and bigger creative-perfume laboratories. Additional space has been given to the soap- and cosmetic-testing laboratories, while more facilities for compounding and production have been installed.

Searle Promotions

Owen J. Picton, for the past three years assistant to the director of medical service, has become director of trade relations of G. D. Searle & Co., according to John J. Searle, president. At the same time, Stephen C. Chase and Robert M. Sweeney have assumed the new offices of regional sales managers and will take charge of the divisions within the western and eastern regions, respectively.

Mr. Chase had formerly represented Searle in Los Angeles for 12 years, the last four as divisional sales manager.

Mr. Sweeney had formerly been a Searle salesman in Richmond, Va., and southeastern divisional sales manager with headquarters in Atlanta.

Modlin Promoted by Goodrich

L. R. Modlin, Jr., has become field sales manager of B. F. Goodrich Chemical Co.'s general chemical sales department, according to R. P. Kennedy, manager of that department. Mr. Modlin, former staff representative, will be in direct charge of all general chemical field sales, with each salesman reporting to him.

Merck 25-Year Club Meets

The Merck Quarter Century Club, New York and Rahway Chapter, held its 16th annual dinner meeting at the Elizabeth Carteret Hotel, Elizabeth, N. J., on December 2, with 190 members attending. Total membership numbers 358, other chapters being located in Philadelphia, St. Louis and Montreal.

George E. Mensching was elected president, succeeding William E. Graff. Maurice L. Rushmore became vice-president, and Walter L. Wilson, Sr., was re-elected secretary-treasurer.

Left to Right, new officers (1955) of Chicago section, Society of Cosmetic Chemists: Seymour Kornblau, Lady Esther, Ltd., secretary; William E. Lieb, Allen B. Wrisley Co., chairman; Sylvia Kramer, Marcelle Cosmetics, Inc., chairman-elect; and Peter Parker, Kolar Labs., treasurer.

Roure-Dupont, Inc.

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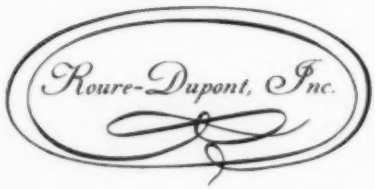
MASTERPIECES



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SUPERIOR 3881

ROURE-DUPONT, INC.
5517 Sunset Boulevard
Hollywood, Calif.
HOLLYWOOD 3-5059

Pfizer Appointments

J. Elmer Wolke, formerly Pfizer representative in the Middle Atlantic states, has been assigned to represent the Pfizer Chemical Sales division in Northern New Jersey. Roger K. Waters, Jr., previously a representative in the New York metropolitan area, is now representing the division in Maryland, Virginia, District of Columbia, Delaware and parts of West Virginia, according to Frank F. Black, sales manager.

Carl W. Lorentzen, formerly with the Valspar Corp., has been appointed representative of the southern portion of Manhattan by Pfizer while Daniel V. Reidy will cover parts of Brooklyn and Long Island and Robert E. Derges, Chicago and its southern and western suburbs according to Frank F. Black, division sales manager. Mr. Derges was previously with the Pabst Brewing Co.

Siegel, Advg. Director, Coty

William F. Siegel, previously manager of production and purchasing of a mail-order firm in Fairlawn, N. J., has been appointed advertising director of Coty, Inc., according to Philip Cortney, president.

U.S.I. Appointments

Lee A. Keane, vice-president of U. S. Industrial Chemicals Co., division of National Distillers Products Corp., has been named director of chemical sales and will be in charge of the sales of all the corporation's chemical products.

Robert H. Cornwell has been named director of production and will be responsible for the production activities of all the chemical plants of the corporation and its subsidiaries.

Dr. Stuart Schott has become director of research. He will be in charge of the research division which will conduct research and pilot plant operations.

LEE A. KEANE

Annual sales meeting of Ungerer & Co., which took place from Nov. 15 to 18. Left to right: E. C. Dohrman, J. L. Slais, C. W. Curtis, F. F. Dittrich, J. R. Martin, W. E. Kell, G. V. Branigan, N. E. Gallagher, W. H. Dunney, S. Goodwillie, Dr. Althausen, F. H. Ungerer, K. G. Voorhees, I. H. Budd, W. A. Bush, F. R. Schumm, H. A. Budd, A. G. Young, Ira Bennett, P. H. Berry, G. R. MacDonald, F. M. Miller, and Ralph Baer.

Assoc. Med. Director, Squibb

Dr. Edward C. Reifenstein, Jr., formerly associated with Schering Corp. in a research administrative capacity, has been appointed associate medical director of E. R. Squibb & Sons division of Olin Mathieson Chemical Corp. His headquarters will be in the Squibb Building, New York.

He will work on the medical and scientific research aspects of a new program on special products, involving certain preparations in the hormone field.

In Upjohn Post, England

James A. Braun has been appointed managing director of Upjohn of England, according to R. S. Jordan, general manager of the Upjohn Co.'s international division. He replaces William H. DeCou who has served in that capacity since 1952 and is now returning to a position in the international division in Kalamazoo.

Mr. Braun started with Upjohn as a salesman in California in 1946.

Finch, Sales Mgr., Pepsodent

V. T. Finch has been appointed sales manager for the Pepsodent division of Lever Brothers Co. He had formerly been assistant sales manager in the Lever division.

V. T. FINCH

Hazel-Atlas Appointments

Lucas B. Cochran has been appointed district sales manager of the company, with offices in New Orleans. He succeeds M. A. Carso who is retiring.

John W. Homburg has been transferred from the company's district sales office in St. Louis to its general office in Wheeling, where he has become assistant manager of the closure sales department.

John M. Duncan has been named assistant district sales manager of the New York City sales office.

Towns & James Warehouse

Towns & James, Inc., drug wholesaler, has begun construction on a modern warehouse and distribution center in the Canarsie area of Brooklyn. It is said to be the largest in the metropolitan area and is devoted exclusively to drugs and pharmaceuticals. The building, to be on land fronting on Remson Ave., Avenue D and East 92nd St., will provide a capacity in excess of 1,400,000 cubic feet.

These new facilities will replace the company's present seven-story building in downtown Brooklyn.

Smith-Dorsey Appointments

Paul Greenwald has become field assistant to the sales manager of Smith-Dorsey, a new position, while Byron A. Dye has been appointed Kansas City division manager. Mr. Greenwald had formerly been Kansas City division manager and Mr. Dye, a medical service representative.

Kelley, V.P., Scholl Mfg.

V. F. Kelley, sales manager of the Scholl Mfg. Co., has been elected a vice-president of the firm.

Joseph A. Wagner, formerly advertising director, has become a vice-president.

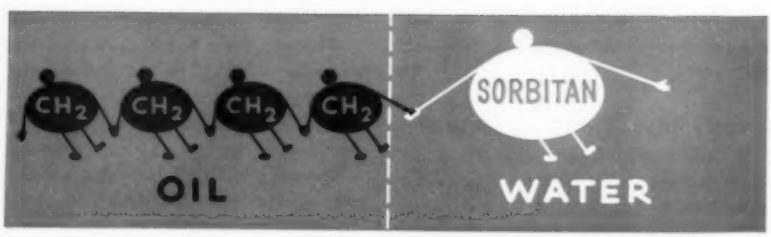
ATLAS chem-memos

CHEMICALS DEPARTMENT
ATLAS POWDER COMPANY, WILMINGTON 99, DELAWARE
ATLAS POWDER COMPANY, CANADA, LTD., BRANTFORD, CANADA

Atlas emulsifiers give you a free hand in formulation

Don't let emulsifiers limit your imagination when you are looking for ways to make new products distinctive by the use of special formulas or ingredients. In the wide variety of Atlas emulsifiers you're likely to find exactly the material or blend you need. You can build your formulas *for your market* . . . not for available emulsifiers.

By juggling the molecular structure of several basic families of emulsifiers, Atlas comes up with a broad range of emulsifying properties. In terms of the HLB system for evaluating emulsifier performance, these products extend from extremely hydrophilic (water-soluble) to extremely lipophilic (oil-soluble) . . . or from high to low HLB values. More than 90 standard Atlas emulsifiers are available, with HLB values and variety of chemical identity to suit literally any emulsion a cosmetic chemist might dream up.



Oil-soluble emulsifiers possess varying degrees of affinity for oil depending upon the number and size of lipophilic hydrocarbon groups, such as may be derived from fatty acids.

Water-soluble emulsifiers are made in varying attraction for water by adding hydrophilic molecular chains.

Suppose you need to emulsify oil in water. For the particular oil you are using, a definite HLB value is required of the emulsifier. That is, the oil demands a specific water-attracting "pull" to be applied to it in order to accomplish the desired dispersion in water.

To provide emulsifiers with differing affinities for water, Atlas adjusts the proportion of hydrophilic groups, such as hydroxyl and oxyethylene (ETO) groups. The more of these the emulsifier has, the greater is its affinity for water.

Similarly, if you are interested in water-in-oil emulsification, you need an emulsifier with a definite amount of attraction for oil. To produce such materials, Atlas builds emulsifiers with varying length of lipophilic component. The oil-loving part of these emulsifiers is a long chain fatty acid radical or a fatty alcohol. And the longer these chains get, the more lipophilic the emulsifier becomes . . . and the greater its ability (in general) to hold water. Thus an emulsifier derived from oleic acid, which has 18 carbon atoms in its chain, behaves in a more lipophilic manner than one made from lauric acid, which has 12 carbon atoms.

To give further flexibility to the formulator, Atlas emulsifiers can be blended with each other . . . producing an almost endless variety of oil and water attraction.

If you'd like further information about the use of Atlas emulsifiers, write for a copy of "A Guide to Cosmetic and Pharmaceutical Formulation with Atlas Products."

You wanted to know...

Several weeks ago, many of you were kind enough to give us a hand by replying to a questionnaire we sent to selected individuals in the cosmetic and pharmaceutical field.

We appreciate the numerous comments and suggestions you offered, and these are being used as our guide in bringing Atlas Chem-Memo readers the type of information you indicated you wanted about our sorbitol and emulsifiers.

Thanks for your cooperation!

Mary Chess Moves Plant

Mary Chess Inc. has moved to Glen Cove, L. I., where its modern laboratories and manufacturing plant is located in the Tower Building of the former estate of the Pratt family. Following a welcome by Mayor Joseph Stanco on behalf of the Glen Cove community, the president of Mary Chess, Joseph A. Danilek, stated that the company's move was made only after careful study and was made necessary by the greatly increased demands for the company's perfumes and cosmetics.

The executive offices will remain at 601 Fifth Ave., New York.

Formerly the Tower Building of the Pratt Estate at Glen Cove, L. I., this structure now houses the modern laboratories and manufacturing plant of Mary Chess Inc.

Marchi with Toni

Dr. Louis E. Marchi, formerly with the Morton Salt Co., has been appointed assistant director of research of the Toni division of the Gillette Co., according to Raymond E. Reed, Toni vice-president in charge of technical operations.

Dixon with Searle

Wesley M. Dixon, Jr., Chicago sales representative of the Owens-Illinois Glass Co. for the past four years, has joined the staff of G. D. Searle & Co., as foreign trade assistant to Franklin P. O'Brien, vice-president in charge of sales.

Mayer with Crown Can

George Mayer, formerly with Robert Heller & Associates, Cleveland, has been appointed a sales representative of the Crown Can division, Crown Cork & Seal Co., and will be attached to the New York district sales office.

Offers Bulk Hydrocortisone

The chemical sales division of Chas. Pfizer & Co. is now marketing bulk hydrocortisone acetate and free alcohol, according to Frank F. Black, sales manager.

Field, V.P., Carbide

John A. Field has been appointed vice-president of Carbide & Carbon Chemicals Co., according to H. B. McClure, president. He will be responsible for sales development and related activities, including the company's fellowships at Mellon Institute.

Mr. Field recently returned to Carbide after a six-month leave of absence to act as assistant administrator of the Business and Defense Services Administration, United States Department of Commerce.

Grace, Pres., Colgate, Ltd.

C. G. Grace has been appointed president of Colgate-Palmolive Ltd., Toronto, Canada, according to William L. Sims, II, president of Colgate-Palmolive International Inc. At the same time, C. R. Vint, chief executive officer, who has been associated with Colgate for 51 years, retired. He will remain as a director of the company.

Mr. Grace, who joined Colgate in 1929, has been executive vice-president and general manager, and a member of the board of directors of the Canadian company since March, 1954.

Hess Promoted by Brockway

Finley B. Hess has been elected executive vice-president of the Brockway Glass Co. With the firm since 1932, he was vice-president in charge of operations prior to this promotion.

Arthur G. Alter

Arthur G. Alter, 44, vice-president of Furlager Manufacturing Corp., died at his home in Yonkers, N. Y., on December 6. Surviving are his wife, Mrs. Ester Engle Alter; two sons, Lee Jay and Joseph I. Alter; a brother, Henry Alter; and a sister, Mrs. William Hanan.

Charles P. Haffey

Charles P. Haffey, traffic manager of Chas. Pfizer & Co., died December 12 in Meadowbrook Hospital, East Meadow, L. I., of injuries received in an automobile accident on November 19.

He joined the company in 1906 as an office boy, later working in the sales, order, billing, import and export departments before becoming manager of the traffic department in 1934.

The second oldest employee of Pfizer in length of service, he is survived by seven children, 12 grandchildren and a sister.

Hoffman Adds to Rep. List

William A. Hoffman, having recently returned from a European trip, has made arrangements to represent two more foreign companies in the United States: Josef Gazan Societe Anonyme in Marseilles and Le Fruit Frais Concentrate in Courbevoie-Paris.

Named Prof. of Toxicology

Dr. Niels C. Klendshoj, president of the Arner Co., has been appointed clinical professor of toxicology, department of legal medicine, at the University of Buffalo School of Medicine. He studied medicine while employed full-time as a chemist for Arner.

Frank Named P&A Agent

Walter R. Frank, Inc., has been appointed agent for Plume & Atwood Mfg. Co. in the states of Minnesota, Wisconsin and Iowa, and several counties in Illinois, Indiana, Michigan and Ohio, according to Ronald V. Bennett, Plume & Atwood general sales manager.

Adrien Hebert

Adrien Hebert, general sales manager of Abbott Laboratories, Ltd., died at his home on November 22. He was 54 years old. Mr. Hebert had been associated with the firm for 31 years, having first been appointed sales manager for Quebec.

Elias D. Stoltz

Elias D. Stoltz, president of Welch, Holme & Clark since 1929, died suddenly on Friday morning, December 10 of a heart attack. He had been with the firm 56 years and had been active right up to five o'clock the previous afternoon.

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AROMATIC MIXTURES MM&R were developed in our laboratories to meet the highly specialized flavoring needs of the modern pharmaceutical industry. They disguise unpalatable drugs both old and new and emphasize the excellence of your products by imparting outstanding taste appeal.

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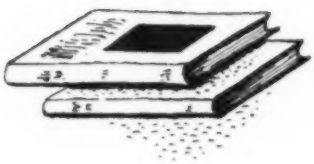


Trade Literature

Stokesfeed Model HF Unit

Stokes and Smith Company, 4992 Summerdale Avenue, Philadelphia 24, has issued a four-page bulletin (B-502) describing the Stokesfeed Model HF unit for conversion of hand-fed Wrappers to Semiautomatic operation. Photos of an actual conversion in a paper box plant give an accurate step-by-step description from drilling and spot-facing to final production of wrapped boxes. Substantial savings are claimed because the old wrapper is not moved.

The Rauwolfia Story

The Rauwolfia Story—From Primitive Medicine to Alkaloidal Therapy, is the title of a booklet published by Ciba Pharmaceutical Products, Summit, N. J. This booklet is considered to be an outstanding development in the technique of presenting, in an effective and attractive way, the story of a research project and the medical implications of a new drug. It is probably the first time that a pharmaceutical manufacturer has made use of a compact and easily readable paper-bound book in this way.

Bulletin on Reserpine

Chas. Pfizer & Co., 630 Flushing Avenue, Brooklyn 6, N. Y., has issued several valuable technical bulletins, the latest one—No. 81—is on reserpine. Others recently issued are No. 73 on vitamin B_{12} concentrates, No. 75 on clinical aspects of cortisone, and No. 76 on pharmaceutical aspects of hydrocortisone. Bulletin No. 73 gives instructions for preparing compressed tablets of vitamin B_{12}, and also methods for making soluble tablet triturates.

Hypochlorous Acid

Guardian Chemical Corporation, 10-15 43rd Avenue, Long Island City 1, N. Y., has issued a treatise on Hypochlorous Acid: Its Preparation, Derivatives and Properties, by Alfred R. Globus. The company says that this compound is probably the most powerful oxidizing and disinfectant agent known, but its characteristics and methods of preparation are surprisingly unfamiliar to most people in the chemical and pharmaceutical fields.

Carbide Technical Bulletin

Carbide and Carbon Chemicals Company, 30 East 42 Street, New York 17, N. Y., has issued a new eight-page technical bulletin (F-8307) describing ethylene carbonate and propylene carbonate. Information is given on physical, chemical, and physiological properties; shipping container contents; suggested uses and applications.

Colt's Plastic Closures

Charles W. Bentley, vice-president and general manager of the Plastics Division, Colt's Mfg. Co., Hartford 15, Conn., announces issuance of a unique combination catalog and price list on stock and custom-molded plastic closures. The folder not only illustrates the items in the Colt line of closures, but also enables the prospective purchaser to quickly and easily indicate a choice of material, color, liner and quantity. Having filled in these specifications, the prospect returns the folder to Colt's Plastic Division, where the price is inserted and it goes back to the prospect as a quotation.

The folder illustrates many custom-molded Colt closures, as showing the complete line of stock items carried.

Dust Control Bulletin

How to control dust in the manufacture of pharmaceutical products is the subject of a new bulletin (No. 550-D) just published by American Wheelabrator & Equipment Corporation, 1792 Byrkit Street, Mishawaka, Indiana. Three illustrated case histories are cited, covering dust control at tablet presses, packagers, mixers, dryers, and materials conveying equipment. All the case histories are illustrated.

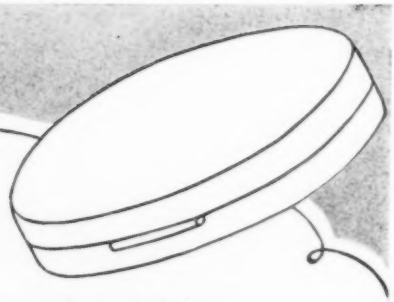
The Folding Carton

The Folding Paper Box Association of America, 337 West Madison Street, Chicago 6, has published a revised edition of its industry manual, The Folding Carton. The booklet, which is available to non-members of the Association for $1.25, consists of 56 pages devoted to the history and manufacturing of the folding paper carton. Profusely illustrated, the book combines a complete graphic review of the industry for the casual reader and a detailed step-by-step treatise for the technical worker.

Beckman Data Sheet

A new technical data sheet (28-63), published by Beckman Instruments, Inc., Fullerton 1, Calif., reveals how a spectrophotometric method proved so accurate in the analysis of vitamin B_2 content of distillery residues that the limiting factor became the sampling technique.

Plymouth



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This specialty raw material, first introduced several years ago, has established itself firmly with the discriminating cosmetic manufacturer for use in his premium face powders.

Its exceptional silky, soft smoothness, the complete absence of odor and the extremely fine particle size plus its extraordinary adhesiveness, they say, make it an outstanding additive. As little as 5%, added to your formula, will demonstrate these qualities, although it is being used in some face powder to the extent of 15%.

We believe this product has special value in pressed-face powders which have gained so much popularity recently.

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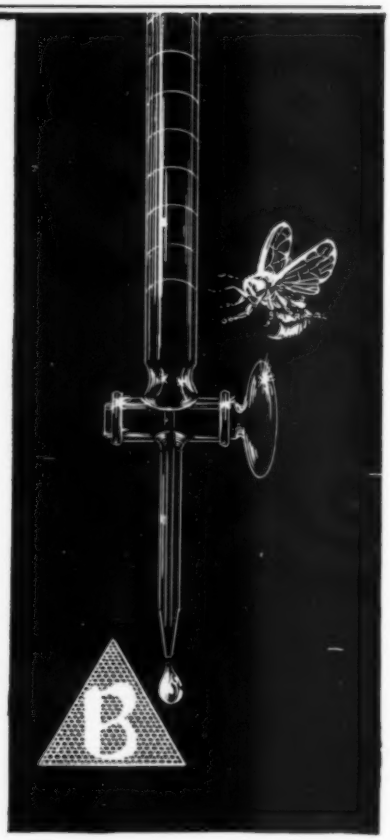

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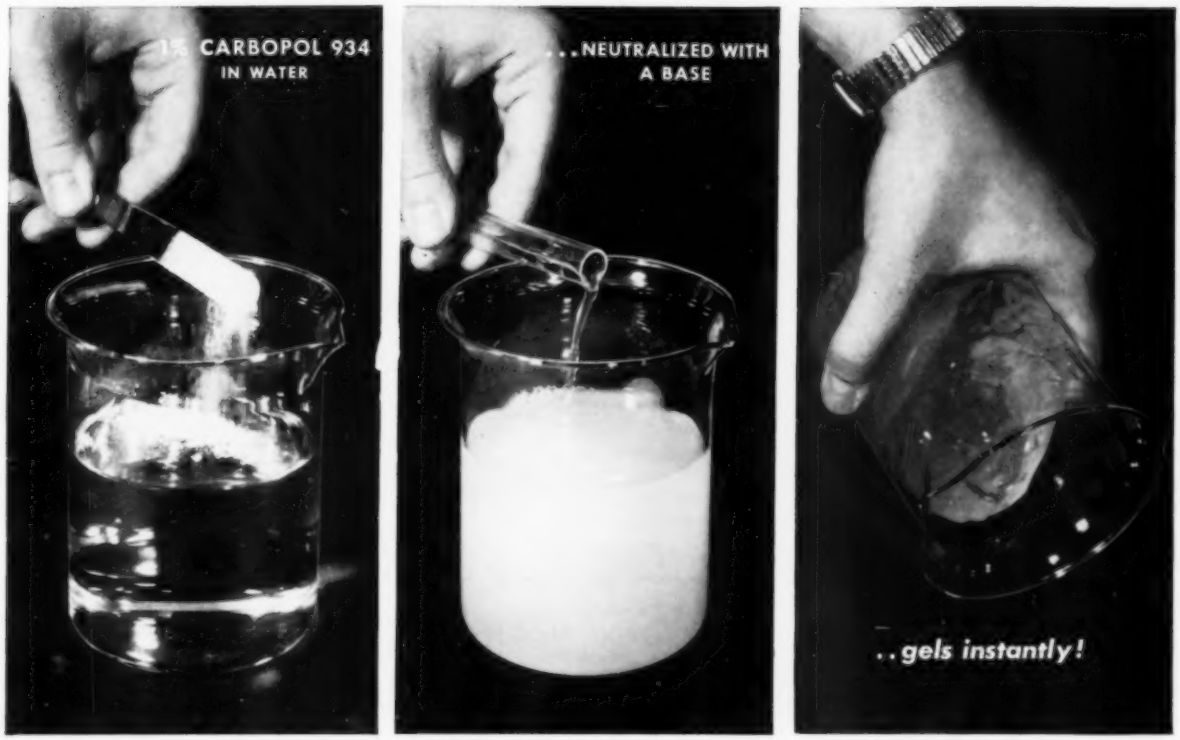

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For technical information and experimental samples, please write Dept. OB-6, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

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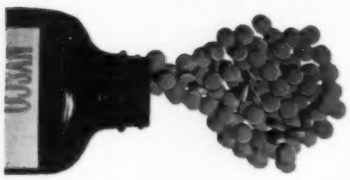

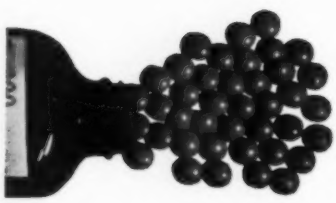

Nysco Laboratories, Inc., Long Island City, N. Y., was recently faced with an emergency order for 6,000,000 ferrous sulfate tablets. Only one of its eight Stokes Model BB-2 tabletting presses could be spared for the job . . . yet the press produced the prescribed quantity in just four days . . . without interrupting regular production schedules.

Usual output at Nysco Laboratories, Inc. is around 20,000,000 standard preparation tablets per week, produced from a stock of over 170 sets of Stokes punches and dies. Over 3,000 different preparations are made by this private formula manufacturer for the Armed Services, hospitals, wholesalers and exporters.

Stokes has the right machines and proved techniques for practical and profitable tabletting manufacture. Easily adjusted or adapted for different tablet sizes, shapes, pressures and speeds, Stokes tabletting presses can be operated at low cost, high output, and maximum efficiency.

Pharmaceutical manufacturers may consult with the Stokes Advisory Service and Stokes field engineers, without obligation, on such problems as tablet formulae, punch and die design, and improved manufacturing and operating procedures.

Send for Catalog No. 800 "Stokes Tabletting Presses", which pictures and describes tabletting processes, and for Catalog No. 600, "Stokes Pharmaceutical Equipment", which describes the complete line of Stokes pharmaceutical machinery now available.

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Management Forum

by Francis Chilson
INDUSTRIAL CONSULTANT

Big Business Blunders

I'll soon be starting my twenty-fifth year as a consultant in the drug and cosmetic industries. In that time I have had many close contacts with managements of different types in different companies. Including the jobs I've done outside the industry, I've been connected with firms ranging from small, one-man shows up to billion dollar corporations. As a result of that experience I can say that, from a management control standpoint, the bigger they are the dumber they are.

I think the fault lies in the attempt to run 1954 corporations with 1920 management concepts. In big corporations big blunders are made and any one of them would put a smaller corporation on the rocks if it made the same mistake. For example, when the Korean War got going and copper became short, General Motors introduced the 1951 Cadillacs with radiators made of a combination of copper and galvanized metal. Wouldn't you suppose that in a corporation that size somebody would know something about galvanic corrosion? Of course they had, but the recommendations of these people were undoubtedly lost in the welter of red tape that ensnares every large corporation—and a good many small ones as well. General Motors replaced all the radiators at a reported cost of $25,000,000.00.

Now let me give you a recent, personal example. I needed a transformer for a gas driven generator that I use at my hunting lodge. Naturally I thought of G. E. because their home office and one of their big plants are within a few miles of East Chatham. So I went straight to the horse's mouth. I called the home office in Schenectady and explained my mission to the switchboard operator.

She said, "Is it power or distribution?"

I said, "It has to do with both."

She then said, "Wait a minute. I'll give you Information."

(Apparently G. E. has an information department so that they can keep track of what they make.)

I waited a few minutes in spite of the fact that I had told the operator I was calling on long distance; then Information came on and again I explained my purpose in calling. She asked, "Is it power or distribution?" Again I gave the same answer. She said, "I have to know which division it is in before I can look it up." By this time I was getting mad so I said, "How the hell would I know how your outfit is classified or organized? I'm just a potential customer doing his damndest to place an order. If you don't know where the transformer division is, call up the research department. There must be some electrical engineers around there who will know the difference between a transformer and a refrigerator—I hope."

She called somebody and then told me there was *nobody at that great headquarters office* who could give me the information I sought and that I would have to call the Pittsfield plant where transformers are made.

So I called Pittsfield and the girl said, "Is it power or distribution?"

I said, "It's your job to know, Sister. You make transformers."

She said, "It is *not* my job to know. I can't be expected to remember all that stuff."

So I said, "Do you have any electrical engineers around there. If you have I'd like to talk with one of them. Anyone will do."

I heard her ask another girl, "Who is an electrical engineer?"

The girl mentioned somebody and in a few minutes a young man came on. I gave him the specs of my generator and asked how I could get a transformer in a hurry. He didn't know because he was in the large transformer division and his division didn't make anything smaller than 200kw. So I said, "This is an emergency. Can't you look in your catalogue and give me the information I want and the name of your nearest distributor?"

He said it would take quite a while to look it up in the catalogue as he didn't have one handy, but he would

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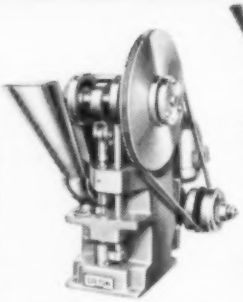

TABLET PRESS. Single Punch. Bench Type—No. 301. Up to 65 tablets per min. Up to ½" tablet dia.

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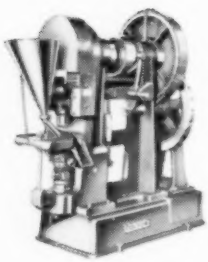

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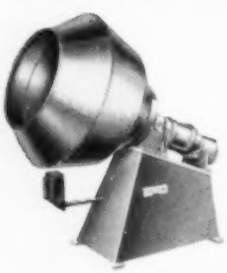
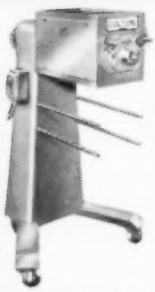
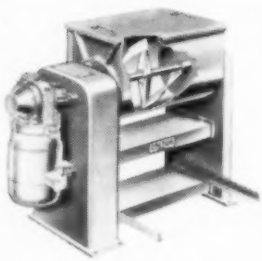


COATERS: POLISHERS: BLENDERS:—No. 36. Laboratory Size; No. 26. Bench Size; No. 16. Standard Size; No. 56. Tilting Type; No. 46. Large Blender.



GRANULATORS. Dry—No. 544 Single; No. 544 Twin. Also, Wet Granulators No. 551, 4-Blade; 561, 6-Blade.



MIXERS. Dry—No. 617, 17 Gal.; No. 636, 36 Gal.; No. 685, 85 Gal.; No. 695, 175 Gal. Also, Paste Mixers.

DRYING OVENS—No. 1018, 10-Tray Lab.; No. 2030, 20-Tray Cabinet; No. 4030, 40-Tray Truck.

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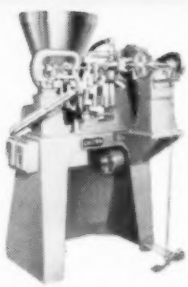
CREAM AND PASTE FILLER—No. 130. Hand Operated. Up to 30 tubes or jars per min. Up to 1" x 5½" tube size, with single stroke.

TUBE FILLERS, AND CLOSERS, AUTOMATIC—Nos. 175; 180; 190. Up to 100 tubes per min., liquid to heavy paste.

TUBE AND JAR FILLERS, GEAR OR WORM, POWER DRIVEN—Nos. 110; 140; 150. Up to 50 fills per min. Up to 2" x 11" tube size.



TUBE FILLER, CLOSER, & CRIMPER, LIQUID & PASTE—No. 113. Up to 40—6-Fl. Oz. fills per min.

TUBE CLOSER, HAND OPERATED—Nos. 440; 450. Up to 20 tubes per min., 2½" x 10" max. size.

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look it up and call me back and also he would write me all the dope. I never heard from the gentleman of General Electric again.

So Westinghouse got the order. I spent $5.40 in toll charges to discover that G. E.'s information service is damn poorly organized.

This is but one of hundreds of examples I could cite. Big companies forget that their telephone operators are important contact points with the outside world and should be extremely well trained and alert.

In large organizations there is a notable lack of indoctrination among lower scale employees. Recently the president of a well known drug and cosmetic company asked twenty-nine of his secretaries and stenographers what the word "antibiotic" meant to them. (He was planning to introduce a new antibiotic product.)

Believe it or not, twenty-three had never heard of the word and it meant nothing to them! Five had vague recollections that it had something to do with penicillin. Only one secretary knew definitely what the word meant. With all that has been printed and broadcast about the wonder drugs it is difficult to believe that such ignorance could prevail in our own industry.

I suggest you try examining your own employees as to what they know about your products and your business. You will be surprised.

One does not expect young, non-technical female employees to know very much about what is going on because the majority of them are looking forward to marriage and are indifferent about their interim work. But where such employees have contact with the public they should be well informed. As to male employees and young technically trained people they should be thoroughly indoctrinated not only because it stimulates their interest but also because it is from this pool that future executives must be selected.

The following information is supplied by manufacturers of the equipment described and claims made below by these manufacturers are passed along for what they are worth. Presentation of such notice in this department is not to be taken as endorsement of the claims or of the equipment.

New Electric Stacker

The Automatic Transportation Co., 149 West 87th St., Chicago, has introduced a new rider-operated electric stacker, called the ESRT Transveyor, which has a 50 per cent greater reach and a third greater load capacity. This is said to be the first truck of its type to have the fork and mast assembly extending and retracting within the track frame—not just the forks alone.

New Stair-Climbing Truck

A new stair-climbing hand truck which is said to safely double the load a man can roll up steps and treble the load he can move down stairs or ramps has been announced by Valley Craft Products, Inc., 750 Jefferson Avenue, Lake City, Minnesota.

The Stair Cart is equipped with a special ratchet mechanism which enables it to roll up stairs step by step as the operator pulls a cable drive.

The two-wheel safety brakes which are incorporated in the truck prevent serious accidents when descending ramps or stairs with heavy loads, since the brakes allow perfect control at all times.

Experimental models of the Stair Cart, which have been in the field for several months, have proven especially practical for handling such materials as welding tanks, barrels, drums, castings, hardware, machinery and related items.

Features such as interchangeable shoes, sealed ball bearings and steel tube construction are said to assure load flexibility and a long efficient life.

The truck is equipped with large pneumatic tires which add to the ease of operation and eliminate any marking of steps. Six different models are available for handling various sizes of loads including a special barrel cart and a complete welding cart.

New Type Filling Machine

Hope Machine Company is pleased to announce their new Type 34 Filling Machine which is designed for the lower production speed ranges. This is built in a two- and four-line model.

The machine incorporates an enclosed power unit, no container-no fill device, a rising table under the filling nozzles, variable speed control, hand wheel for turning the machine through one cycle, and an enclosed quantity adjustment of the micrometer type. Adjustable filling head height is also one of its features.

It is ideal for filling an aerosol type product where accuracy of fill is important due to the gas displacement. This machine in the four line version is under $4,000.

It can be supplied with various types of hoppers with or without jackets and with several types of agitators for different product applications. All main shafts are equipped with self-aligning ball bearings, and the isolation of the drive system from the product zone keeps maintenance at a minimum.

It is extremely compact and makes a handsome addition to a packaging line.

Drum Storage Rack

A new, lightweight, low-cost storage rack for drums has been announced by the Star Welding Company, 1054 East 134th Street, Cleveland 10, Ohio.

Designed to raise drum spouts to pouring heights or for storage, the new unit is of all-steel welded construction and will easily support a full 55-gallon drum. Wide legs assure stability.

Easily knocked down (only a single bolt is involved), the new rack costs $5.99 f.o.b. Cleveland. Quantity discounts are also available.

NO OTHER FULLY AUTOMATIC LABELER CAN

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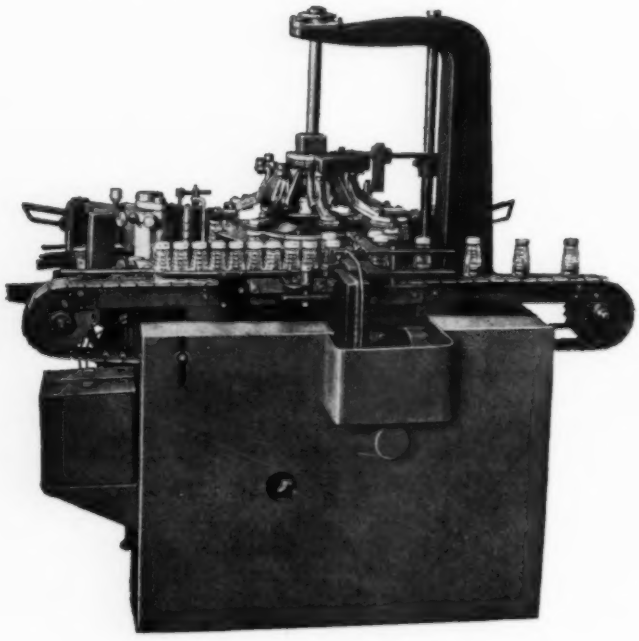
the PONY EXPRESS®

GIVE YOU ALL THESE Extra ADVANTAGES



1. Handles oval, square, round and tapered shapes.
2. Applies glue from edge to edge for elimination of blisters.
3. Uses vacuum principle of label handling to assure perfect register and minimum glue attention.
4. Effective circulating glue system, - with micro glue control to prevent glue smears on containers.
5. Requires NO OPERATOR.
6. Petty-Cash Change-parts.
7. Clamps containers into position **prior** to moving container toward labeling station, to avoid faulty label register.
8. Change-over almost as quickly and simply as the Pony Labelrite.
9. No label-feeding unless incoming containers signal their approach.
10. Self-cleaning glue system,

The PONY EXPRESS is a logical development incorporating all the precision features which have made an unprecedented reputation for the Pony Labelrite. Being fully automatic, the FULL rated capacity (70 per minute) is available for sustained production.

Here, for the first time, is an automatic which is **not** "single-purpose", or restricted to a greatly limited range of work,—usually the case with ordinary automatic machinery.

We'll gladly arrange a demonstration!

539 ***Send in sample containers with labels for accurate details!***

NEW JERSEY MACHINE Corporation

AUTOMATIC LABELING • PACKAGING — PAPER BOX MACHINERY • MAKERS OF THE PONY LABELRITE

FACTORY SALES AND SERVICE BRANCHES
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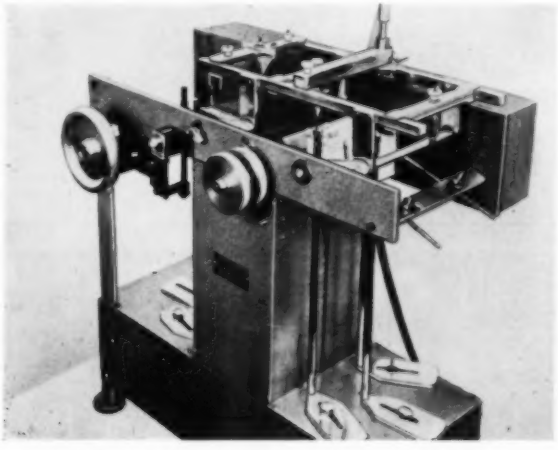
New Bulk-Label Imprinter for Multi-Legend Marking

A new fully automatic bench-size machine that imprints labels with as many as a dozen different changeable legends simultaneously has been introduced by Adolph Gottscho, Inc., makers of code-dating and marking machines.

Designated the "Model C Corliss-Coder" imprinter, this new machine accommodates a bulk stack of labels ranging in size from ¾" x 1" to 5½" x 3". The markings—which may include code, expiration date, lot number, size, quantity, flavor or other variable identification data—may be located anywhere within a 2" x 2" area and may be arranged to run in any direction.

Fully automatic, the Corliss-Coder machine requires no operator attention after labels have been placed in its magazine and the machine is turned on. The unit automatically stops after imprinting the last label. For labels of average thickness the machine holds a capacity equivalent to approximately one hour of imprinting operation.



Imprinting is done from interchangeable rubber type or complete dies and impressions are said to be extremely clean and sharp. Re-inking is required only once every few days.

Other features of the new Corliss-Coder imprinter include a foolproof separating mechanism that assures positive imprinting of each label, thus minimizing the need for inspection; delivery of marked labels in perfect single stack, ready to feed to labeler; and simple 10-minute changeover for labels of different size and new copy. The machine is reported as very simple to operate.

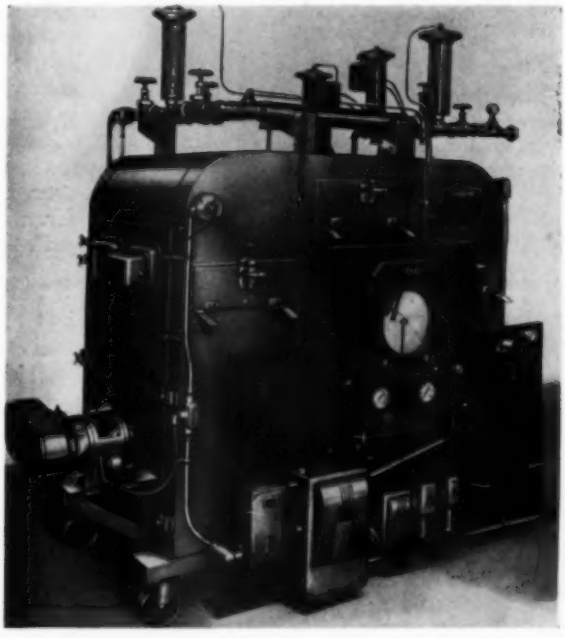
A bulletin describing the Model C Corliss-Coder machine may be obtained from Adolph Gottscho, Inc., Hillside 5, New Jersey.

Portable Lab. Dryer

C. G. Sargent's Sons Corporation of Graniteville, Mass., announces a new, portable, completely self-contained dryer. It is available to industry and university laboratories on a rental, a rental-purchase, or an outright purchase basis.

It is believed to be the first such machine to incorporate every known feature of a research laboratory dryer with the tremendous advantage of portability. This new dryer is full-size, not a midget or junior model. It is fully instrumented. It uses either steam-heated or electrically-heated air. The heavy duty ball bearing casters on which it is conveniently mounted lock securely when dryer is positioned at the job or in the laboratory. After the usual simple steam and electrical connections have been made, the dryer is ready to go to work. It may be moved quickly and easily to any location, wherever or whenever needed.

Designed primarily as a research laboratory dryer for

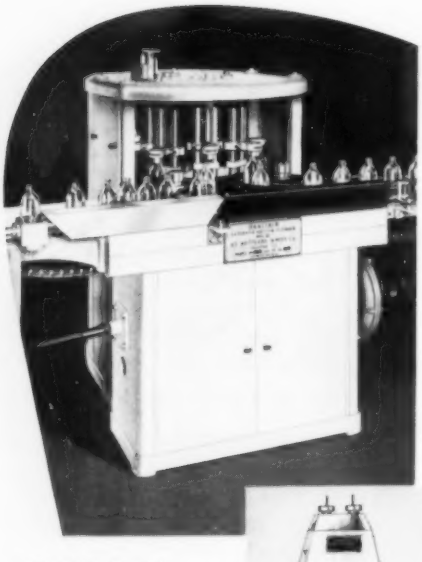


pilot plants, and for industrial and school laboratories, wherever drying processes exist, the new portable lab dryer has already proven that it does a man-sized job on the production line. This is particularly true where quick adaptability to variables in materials or methods is a requirement.

The dryer is equipped for tray drying, or for pole, roll or plate drying, as desired. All gauges, valves, control and recording instruments and charts are mounted on the face of the dryer to make it an integrated, self-contained unit. It may be operated manually or automatically, or in combination, and each variable, including air velocity, in the drying process may be changed at will without disturbing any other factor.

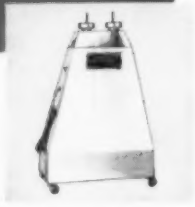
New Counting and Packaging Machine for Tablets

A filling and counting machine for tablets and capsules has been introduced by the Burnet Co. Called the Rotax, the machine is manufactured in Germany



Semi-Automatic Air Cleaner

The EZ Air Cleaner is ideal on short runs or as stand-by equipment on peak loads. Can be furnished to connect to users air supply. Inverted cleaning action efficiently removes all foreign matter from new containers of any size or type. Aircleans 2 containers at a time with a capacity from 20 to 40 containers per minute. Write for EZ Bulletin.



SANITAIR AUTOMATIC AIR CLEANER

● Most efficient high speed cleaning action. Most positive evacuation of all foreign matter. Handles entire container range with quick changeover. Handles also sprinkler top and aerosol valve finishes. New model for wide-mouth containers.

The Sanitair is completely automatic and can synchronize with automatic filler. It is a rotary machine of extremely sturdy long-life construction yet operates with amazingly smooth, vibrationless action. Does double-cleaning time at all speeds with economical use of compressed air. For complete details, write for the Sanitair Bulletin.

U. S. BOTTLERS MACHINERY COMPANY

4013 North Rockwell Street — *Chicago 18, Illinois*

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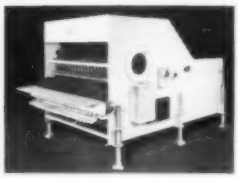
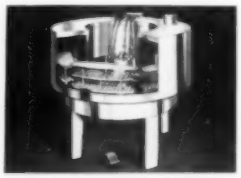
WASHING EQUIPMENT

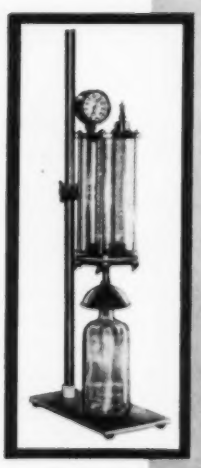


U. S. Load-A-Matic automatically unscrambles and rinses containers at high speed. Handles up to 12 oz. containers, catsup bottles, etc. Write for Load-A-Matic Bulletin.

U. S. Rotary Rinser does both inside and outside of any shape bottle or jar. Water, steam or air. Write for Rinser Bulletin.



U. S. Ampoule Rinser is built entirely of stainless steel. Teflon valve seats never require lubrication. Write for full details.



Especially designed for the handling of small volumes of liquid. Stainless Steel and Pyrex construction.

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Cloth, paper, asbestos pads or any other filter media may be used. Has special outlet assembly for sterile bottling for bacteriological work.

Also available in smaller sizes.

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and is offered in two sizes, the larger handling as many as 100 tablets per stroke.

In both models the feeding system automatically carries the tablets on a revolving disk in the hopper so that they are fed into the chute by centrifugal force. In the chute the tablets are stopped by a pin and form a single line. An empty container is placed against a holder, raising the bottom stop pin and engages the upper stop pin at a pre-set point, and the flow of tablets starts.

While the container is in place it is vibrated. When the filled container is removed, the vibration stops and the chute again fills with tablets. Both machines are adjustable to different size tablets. The large models rated as high as 100,000 tablets per hour.

Cooler on Wheels Makes Quick Freeze

New performance data has just been released on the LANCO Portable Water Bath Cooler. Tests were conducted at room temperature of 75° F. The refrigeration unit cooled a five-gallon water bath from room temperature to 32° F. in less than two hours.

A mixture of one gallon of water and one gallon of methanol was cooled from solution temperature of 62° F. to 32° F. in less than 30 minutes at room temperature of 75° F.

Temperatures can be controlled within the accuracy of the thermoregulator in a range from 0° F. to ambient. A thermoregulator can be plugged into a convenient outlet in the top of the cabinet. The refrigerating unit has a built-in relay that takes any thermoregulator or timing switch of the user's choice.

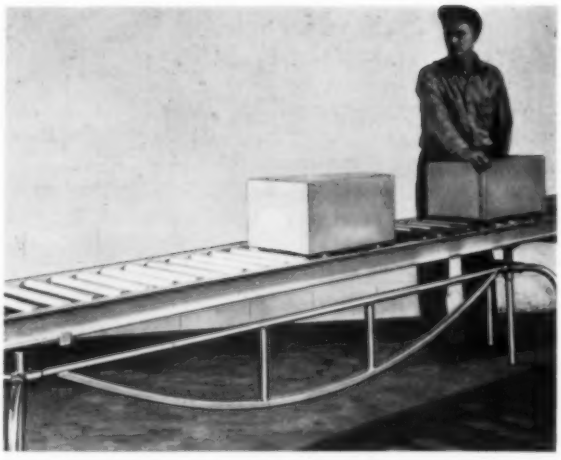
The 1/8 HP compressor is sealed in oil for the life of the unit. The condenser is air-cooled. Freon 12 is the refrigerant. The cooling coil measures 9″ in diameter, 2″ in height, and has a one-foot straight length above. A five-foot flexible metal hose connects the coil to the refrigerating unit.

The small size (22½″ height, 14″ width, and 14″ depth) of the metal cabinet, which is mounted on casters, makes it easy to connect the cooler at the spot where it is needed. When not in use, it can be rolled under a laboratory bench or into a closet. It weighs less than 100 lbs.

New Magnesium Roller Conveyor

Introduction of a new, portable roller conveyor has been announced by Magline Inc., of Pinconning, Michigan. The new units are constructed entirely of magnesium and, according to the manufacturer, weigh from 15 per cent to 40 per cent less than comparable equipment of similar size and capacity.

Suitable for permanent installation or for portable use, the conveyor can be easily set-up or dismantled by one man and greatly facilitates conveyor job spotting in plants and warehouses. Available in two capacities: 500 lb. and 900 lb. Roller sizes range from 12 inches to 20 inches.



The new Magliner units can be installed as a complete system or supplied in individual sections, with couplers to match existing systems. Portable magnesium stands in three height ranges, 17″ to 72″ above floor level, are also offered. Additional information is available on request from Magline Inc., Pinconning, Michigan.

Improved Mechanically-Operated Scale

Richardson Scale Co. has adapted its standard mechanically-operated bagging scale (GGG-38) with a synchronized belt feeder and a pneumatic inlet-gate assist, according to an announcement made here.

With these modifications, the GGG-38 now sacks at speeds up to 40 per cent faster with no loss in accuracy, handles materials that formerly could not be accommodated, and operates over a weight range that was not possible heretofore.

Unlike the standard model the new unit weighs lumpy materials—2½″ cubes of cattle feeds for example, and will handle weights anywhere from 25 to 100 lbs. Typical products handled include chemicals, grains, feeds, food products, fertilizers, rock products and ceramic materials. The new unit, called the GGG-38 Multi-Purpose bagging scale, will handle practically every material sacked in the modern feed mill.

The standard GGG-38 is a 100-lb. bagger and is usually gravity fed. It is called a mechanically-operated bagger in that the tripping action closing the inlet gate and opening the weigh hopper discharge door is mechanically rather than electrically initiated. The design has been undergoing improvement over the past 15 years, and the unit is currently being used in thousands of mills and plants in the U. S. and in installations abroad.

As far as comparative weighing rates are concerned, the standard model handles up to six 100-lb. weighings per minute. The new unit weighs up to ten 100-lb. drafts per minute.

A few other representative rates currently being achieved at a southern feed mill: crumbles at fourteen

50-lb. bags per minute, dry mash feeds at eleven 50-lb. bags per minute, scratch grains at fourteen 25-lb. bags per minute.

Tests show that accuracies are the same with the new unit at the higher bagging rates as they are with the standard model. In bagging the above crumbles, for example, weights varied no more than plus or minus 2 oz. As is expected, tests show that deviations are greater when weighing outsize and hard-to-handle materials.

Operation of the belt feeder is synchronized with the operation of the scale. When the inlet gate of the scale closes, the feeder drive motor stops; after the scale discharges, the inlet gate opens and the motor starts up again.

The feeder is equipped with a built-in brake to prevent coasting and a ¾ HP drive motor. The feeder belt is 22″ wide, and made of 2-ply heavy-duty rubber.

The scale is enclosed, and is designed with removable cover plates to facilitate cleaning.

For additional information, write to Richard Steensma, Richardson Scale Co., Van Houten Ave., Clifton, N. J.

New Hydraulic Carton Clamp

A unique hydraulic clamp, designed for palletless handling of a wide variety of sizes of cartons, has been introduced for use on the complete line of fork trucks manufactured by the Elwell-Parker Electric Co., Cleveland, Ohio.

The new attachment saves time formerly required in palletizing loads; in addition, storage space can be used more effectively and the problem of loading and unloading pallets when material is received and shipped is eliminated. Also eliminated or markedly reduced is the usual investment in costly pallets and skids.

A variety of clamp arms is available to permit handling nearly any product, ranging from solid cartoned merchandise such as canned goods, soap or oil cans to cartons of noodles or breakfast cereal, egg crates and other fragile items. In addition to the clamping feature, a side-shifter can also be provided to save time and permit accurate spotting of loads. This device is of particular advantage in loading cars or trucks for operation in crowded areas.

Additional information may be obtained from the Elwell-Parker Electric Co., 4205 St. Clair Ave., Cleveland 3, Ohio.

New Stokes Press Makes Multi-Layer Pharmaceutical Tablets

Tablets of more than one layer can be made on a new Stokes rotary tabletting press recently introduced by F. J. Stokes Machine Company, Philadelphia, Pa.

The new press permits several new pharmaceutical tabletting possibilities. For example:

1. Two or more materials which are not chemically compatible and hence cannot be blended, such as multiple vitamin complexes or effervescent combinations (one-half alkali and one-half acid), may now be combined in a single tablet. Where necessary, a thin barrier layer of a neutral material can be interposed between them.

2. A two-stage medication, with a slower disintegration of the second stage for a delayed-reaction effect, can now be prepared. The second-stage material can be blended with an extra binder so that it will dissolve more slowly than the first-stage dosage.

The separate layers can be made any thickness desired, and the ratio of thickness of one layer to another can vary from 1:1 up to 1:3. No decrease in the rate of production of the press is required by reason of the multi-layer filling operations.

The new Stokes design is, in essence, a modification of a standard Stokes 16-station rotary tabletting press, with the addition of one or more extra hoppers and feed frames, and a corresponding number of weight adjusting and filling cams. Only one compaction per tablet is used. The die is filled, in turn, with the two or more materials to be combined, and then the piece is compressed.

The new multi-layer feature is available on a number of Stokes rotary presses, of which the B-2 and D-3 models will be most suitable for pharmaceutical work. With the modified B-2, multi-layer tablets up to 5/8 in. in diameter and a maximum depth of fill of 11/16 in. can be made, with a maximum pressure of four tons. Output is from 350 to 650 tablets per minute, depending on the materials being compacted. With the modified D-3, tablets up to 15/16 in. in diameter and a maximum depth of fill of 13/16 in, can be made, with a maximum pressure of seven tons. Production is at the rate of 190 to 350 tablets per minute, again depending on the materials.

With the multi-layer feature, somewhat closer supervision is recommended to obtain the best operating results. Particular attention must be given to see that the dies are set up uniformly level, and the operation of the scrapers needs to be checked periodically.

SO CLEAR, THE CAPSULES SEEM TO FLOAT IN SPACE

Kimble Opticlear Vials are made of such extremely clear glass that their contents virtually seem to float in space. That is part of the classic beauty of these vials especially designed for fine prescriptions and fine pharmaceutical products.

Adding to their efficiency in repelling moisture that sneaks through the sidewalls and bottoms of some types of containers, is a moisture-proof closure especially engineered for Kimble Opticlears, that is moisture-proof beyond anything else in the market.

Opticlears' easy-in and easy-out closures, clear and sparkling glass have helped make outstanding sales successes for a broad and varied assortment of pharmaceutical and proprietary tablets and capsules, fancy food items, spices and advertising novelties.

* * *

Kimble Opticlear Vials are only one of many Owens-Illinois contributions of engineered glass products to the nation.

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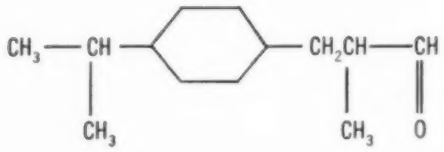
CYCLAMAL®

(CYCLAMEN ALDEHYDE)

$C_{13}H_{18}O$



Molecular Weight: 190.27

Typical Specifications:

PHYSICAL APPEARANCE:	Nearly colorless liquid.
ASSAY:	93% minimum Aldehyde content.
ODOR TYPE:	Floral; Lily-of-the-Valley or Muguet.
SOLUBILITY (@ 20°C):	10 parts soluble in 15 parts 80% Ethyl Alcohol.
STABILITY:	Lasting in soaps, cosmetics and of a high quality which permits its use in the most expensive perfumes.
REFRACTIVE INDEX $(n\frac{20}{D})$**:**	1.5055
SPECIFIC GRAVITY $(\frac{25}{25})$**:**	0.950
SUGGESTED USES:	As a base for Lily-of-the-Valley and Muguet perfumes to 5%; as a floral modifier from ¼% to 5%.

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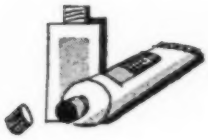

Advancing Therapy

Salk Polio Vaccine

Latest studies have provided the most suggestive evidence so far that the anti-polio vaccine will end the crippling form of the disease as soon as the susceptible age groups are properly vaccinated. The immunity agent is prepared with killed viruses of the three types of polio.

This may mean the end of one of the greatest scourges of mankind, crippler of young and old alike, within the next five years or less.

In a paper presented before the Association for Research in Nervous and Mental Disease, Dr. Jonas E. Salk, originator of the triple-vaccine, said that the vaccine, if properly prepared and administered, could produce an immunity considerably more potent than that provided by natural infection. Furthermore, such an immunity would last for many years, possibly for life.

The studies showing that vaccines prepared from killed viruses produce a long-lasting immunity even more potent than the challenge of a natural infection may have far-reaching effects, Dr. Salk said, in the production of vaccines against other virus diseases, such as influenza and the common cold.

In fact, the findings open new vistas for preparing vaccines against a host of serious infectious diseases such as tuberculosis, pneumonia, and the streptococcal infections associated with rheumatic heart disease. Until now no serious attempts have been made to produce vaccines against these infections with killed bacteria.

One of the most important observations made so far in the course of these investigations, Dr. Salk said, was that the polio virus is a much more potent antigen (stimulator of antibodies) than had heretofore been recognized, and that the quantity of virus necessary to produce the antigenic effect, and a long-lasting one, was much less than could have been anticipated. In fact, on the basis of body weight, the human being has been found to require much smaller immunizing doses than either the mouse or the monkey.

Of equal importance is the fact that it is now possible to induce in the individual a state of hyper-reactivity to the three types of crippling polio virus, so that contact with the virus or the vaccine, at a later time, will produce a booster effect.

Aldosterone

The isolation from extracts of beef adrenal glands of a new crystalline hormone with high activity in the control of mineral metabolism has been reported briefly by laboratories abroad and in this country. The new crystalline hormone was originally named electrocortin by the English-Swiss group. With establishment of its chemical structure as 11β,21-dihydroxy-3,20-diketo-4-pregnene-18-al, these investigators assigned to the hormone the new designation aldosterone.

Non-crystalline concentrates of presumably the same hormone have been prepared from hog adrenal gland extracts, dog adrenal venous blood and human urine, and by perfusion of monkey adrenal glands. In addition it has been implied that the same mineral-active substance is present in placental extract.

Isolation of crystalline aldosterone from beef adrenal glands by partition chromatography is described by R. E. Harman et al. (*J.A.C.S* 76:5035, 1954). A series of three partitions of defatted adrenal extract, the first between benzene and 50 per cent aqueous methanol, the next two between 10 per cent ethyl acetate in benzene and 50 per cent aqueous methanol, provided 10-25 mg. of the crystalline hormone per 500 kg. of glands.

New Arthritis Steroids

Promising results in first trials of two new, partially synthetic drugs for arthritis were reported by Dr. Joseph J. Bunim, clinical director of the National Institute of Arthritis and Metabolic Diseases, at the American Rheumatism Association meeting held at the Institute, Bethesda, Md.

The drugs are called metacortandralone and metacortandrosin. They are steroid chemicals and were developed by the Schering Corporation.

Both drugs on the basis of relatively short term trials appear to be more satisfactory anti-rheumatic agents than any other compounds thus far known. They are effective anti-rheumatic and anti-inflammatory agents.

They are three to four times more potent than cortisone and two to three time more potent than hydrocortisone. Observations indicate this higher potency is not accompanied by increased side effects. In fact, the reverse is true.

The increased potency makes possible a smaller dose. The dose is sufficient to control satisfactorily the arthritis and yet small enough to avoid undesirable side effects. In this way, the new drugs are able to demonstrate a higher therapeutic ratio than cortisone and also hydrocortisone.

Although the drugs as yet have not caused any of the undesirable side effects common to cortisone, it is not as yet known whether they will in time show some of the limitations of the hormone.

"Neither of these drugs," Dr. Bunim said, "is a cure for arthritis, nor are they completely satisfactory; certainly not good enough to encourage complacency.

"All that can be said at this point is that on the basis of these short-term trials on a limited number of patients, these new steroids appear to be better than anything else now available."

Electrolytic Effects of Licorice Preparations

Spanish licorice extract, ammoniated glycyrrhizin, monoammonium glycyrrhizinate and glycyrrhetinic acid were tested by W. E. Hassan, J. E. Palumbo and F. Elmadjian (*Journ. Am. Pharm. Assoc. Sci. Ed.* 43:551, 1954) for electrolytic activity similar to that of desoxycorticosterone acetate.

Spanish licorice extract, ammoniated glycyrrhizin, and monoammonium glycyrrhizinate, administered orally, exhibited an electrolytic activity when this activity is expressed as the K/Na ratio. It was observed that, first, there

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was an indication of quantitative decrease in sodium output and urine retention with increased drug dosage; second, there was little or no change in the potassium output.

Spanish licorice extract, ammoniated glycyrrhizin and monoammonium glycyrrhizinate produce a K Na ratio which follows that of desoxycorticosterone acetate with increased dosage. Glycyrrhetinic acid does not follow the desoxycorticosterone acetate pattern because of its greater potassium retention effect.

Glycyrrhizin alone is not sufficient for the adequate maintenance of the patient with bilateral adrenalectomy according to P. B. Hudson, A. Mittelman and M. Pedberezec (*N. E. J. Med.* 251:641, 1954). It is possible to maintain patients on heretofore considered submaximal doses of cortisone for periods ranging from three to eight weeks with the addition of glycyrrhizinic acid.

In two cases patients could be maintained adequately for eight and sixteen days, respectively, with glycyrrhizin alone.

With the use of glycyrrhizin the development of adrenocortical insufficiency is a gradual process, extending over weeks.

Earlier reports that glycyrrhizin seems superior to desoxycorticosterone acetate for therapy in the hypoadrenal patient are borne out by this study.

The mechanism whereby glycyrrhizinic acid exerts its adrenocortical-like effect is unknown.

New Penicillin Salt

During the last 10 years much research has been directed to finding a penicillin salt with a prolonged action. This has now been discovered in the Glaxo Laboratories, and clinical trials have been made with it at King's College Hospital, London, and the Royal Victoria Hospital, Belfast, Ireland (*Brit. M. J.* 2:339, 1954). The long-acting compound is the N-benzyl-β-phenylethylamine salt of penicillin, for which World Health Organization has suggested the name benethamine penicillin. Its potency is about 1,100 units per milligram and it is prepared as an aqueous suspension ready for injection in a vehicle containing suspending, buffering, wetting, and bacteriostatic agents. The preparation was tested on 33 patients confined to bed and on medical students. Assays were performed on serum obtained by vein or ear puncture by the technique recommended by the U. S. Food and Drug Administration Antibiotics Laboratory. A single intramuscular injection of 600,000 units of benethamine penicillin produced adequate blood levels for five days, and 900,000 units had a duration of action of six days. The blood levels were more prolonged than those obtained with procaine penicillin, and although of shorter duration than those following the injection of benzathine pericillin G, the blood levels were higher than those obtained with this salt. The results suggest that one or at the most two injections of benethamine pericillin should suffice for the treatment of infections seen in everyday practice.

New Hypotensive Drug

Good results with first trials of a new blood pressure lowering drug that is taken by mouth were announced by Dr. Keith S. Grimson of Duke Medical School and Hospital, Durham, N. C., at the meeting of the American College of Physicians in Philadelphia and described in *Science News Letter*.

The new drug is called Su-3088. Chemically, it is dimethylaminoethyl tetrachlorcis indolene bismethochloride. It was synthesized by Dr. Albert J. Plummer and associates at the Ciba Foundation, Summit, N. J.

One small tablet of Su-3088 taken before breakfast reduces blood pressure to normal throughout the day, Dr. Grimson found in trials with 15 patients.

The drug achieves its blood pressure lowering effect by its action on nerve centers. In this it is like hexamethonium and related compounds. In the trials so far, however, it seems to be more uniformly effective when given by mouth.

Cysteylascorbic Acid

The use of natural constituents of the body as chemotherapeutic agents has been suggested by Meyer - Doring (*Nature*, 174: 555, 1954). He describes experiments carried out with "cysteylascorbic acid," a compound synthesized from the naturally occurring substances cysteine (which has been used to treat mustard gas burns and hepatitis) and ascorbic acid (which possesses a bactericidal action). The synthesized compound was shown to possess *in vivo* activity against *Pneumococcus mucosus; in vitro* activity against the same organism was present at a dilution of 450 micrograms per ml. Further experiments indicate a similar degree of activity against *Staph. aureus, E. Coli,* and *Streptococcus.* The cysteylascorbic acid is stated to show negligible toxicity to mice. Experiments are being carried out to determine the exact chemical constitution of the compound.

Morinda Citrifolia for Hypertension

Dang-Van-Ho (*Presse med.* 62:1020, 1954) made use of Morinda citrifolia, a plant that grows abundantly in southern Viet-Nam, in the treatment of arterial hypertension. The roots of this plant, which is known as Cay-Nhau or Re-Nhau, have been used empirically by the natives, not only for hypertension, but as an antirheumatic or emetic. Five patients are reported on; four of them had dramatically successful results, and one was greatly improved. The author has also treated other patients successfully. He stresses the fact that the extract must be combined with other therapeutic agents when there are complications of hypertension. It is an excellent diuretic, and is superior to orthosiphon, calcium chloride, or theobromine in the treatment of dropsy. In the author's opinion, it could probably be successfully combined with other hypotensive agents, such as methonium. Morinda citrifolia has been studied biochemically and pharmacologically, but its medical properties should be further looked into.

Carbomycin, N.N.R.

Carbomycin (Magnamycin — Pfizer) is an antibiotic isolated from the elaboration products of *Streptomyces halstedii,* when grown by deep culture in suitable media. The structural formula of carbomycin has not been established.

Carbomycin possesses strong inhibitory activity against certain Gram-positive bacteria. Until adequate clinical evidence becomes available, carbomycin is indicated only in the treatment of infections caused by staphylococci, pneumococci, and hemolytic streptococci. Therefore, it is useful in the treatment of pneumonia, urinary tract infections, soft tissue infections, abscesses, and tonsilitis caused by these organisms.

Carbomycin, as the free base, is only slightly soluble in water but is readily absorbed following oral administration. An appreciable amount (approximately 10 per cent of the injested dose) is excreted in the urine in active form, and the drug appears to be distributed throughout the body in all organs and secretions.

Carbomycin exhibits a low degree of toxicity in experimental animals. Clinically, no harmful side effects have been observed with therapeutically effective doses. Studies of the urine, blood, and liver function have revealed no evidence of toxic action. Nausea and vomiting are the principal side effects; diarrhea occurs infrequently.

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Compounder's Corner

Non-Ionic Ether Emulsifier

J. W. Hadgraft, writing in *The Alchemist* (October 1954, p. 500), describes work done with ethers of polyethyleneglycol and cetostearyl alcohol. They have the general formula:—

$$CH_3.(CH_2)_{16}.CH_2.O.CH_2.CH_2.(OC_2H_4)_n.OH$$

in which "n" can vary over a considerable range. This range of non-ionic emulsifying agent is stated to be more consistent in behavior and more resistant to hydrolysis than other non-ionic emulsifying agents derived from polyethylene glycol.

The investigation covered a range of products in which the average value of "n" ranged from two to 30. Solubility in water increases with increasing length of ethyleneglycol chain—the lower members are dispersible—while solubility in mineral oil or peanut oil follows a reverse course.

Emulsions containing 50 per cent of mineral or peanut oil were made by dissolving the ether in the phase in which it was soluble and shaking vigorously with the other phase. The products were stored at room temperature and examined after one month. Satisfactory emulsions were obtained using three per cent of waxes containing two or four ethylene oxide units but not with the higher members. Passing the product through a homogenizer did not effect complete emulsification when this could not be achieved by vigorous shaking, but it did prevent cracking in emulsions made with some of the higher waxes in the series.

A series of non-ionic emulsifying waxes was then made to the following general formula, the two substances being melted together over a water-bath:—

Cetostearyl-polyethylene-glycol ether	**20 g.**
Cetostearyl alcohol	**80 g.**

It was found that a concentration of three per cent of the wax (containing only 0.6 per cent of the ether) was enough to effect complete emulsification of equal parts of mineral or peanut oil and water. The addition of the cetostearyl alcohol almost completely masked the variation in emulsifying properties between higher and lower members of the ether series. Emulsions containing four or five per cent of the wax tended to develop a surface skin on storage. Molds were found growing in several of the emulsions, indicating the need for the use of a preservative.

Emulsions were then prepared using the range of non-ionic emulsifying waxes with varying proportions of oily phase. Waxes intermediate in the series ("n" = 4, 6 or 10 for mineral oil; 6, 10 or 18 for peanut oil) were the more effective in emulsifying concentrations of oily phase of 70 per cent. The two waxes in which "n" was six or 10 were equally effective in securing complete emulsification of 70 per cent of either mineral oil or peanut oil.

An emulsifying ointment was then made according to the B.P. formula but with cetomacrogol 1000 substituted for emulsifying wax B.P., as follows:—

Cetomacrogol 1000	**18 g.**
Cetostearyl alcohol	**72 g.**
White soft paraffin	**150 g.**
Liquid paraffin	**60 g.**

This ointment gave stable creams when incorporated with amounts of water ranging from 30 to 80 per cent of the product and could be diluted with water indefinitely. The compatibility of the ointment with a range of dermatological medicaments was investigated using the ointment 30 per cent in water with 0.1 per cent chlorocresol and medicament q.s. Most of the medicated creams prepared in this way kept well, but there was slight separation with phenol, benzoic acid plus salicylic acid, salicylic acid plus sulfur, and solution of coal tar. With resorcinol and tannic acid the creams separated completely. There is evidence that phenolic substances form additive compounds with the ethylene derivatives.

Newly Accepted Antioxidants

The addition of octyl and dodecyl gallate to the permissible antioxidants for foods has been recommended in a report presented to the Food Standards Committee of Great Britain by its Preservatives subcommittee. In an earlier report, issued June, 1953, only two antioxidants were recommended: namely propyl gallate and butylated hydroxyanisole.

The committee also recommends that the use of antioxidants should continue to be confined to edible oils and fats and to essential oils—*i.e.*, foods liable to oxidative rancidity. In the case of the latter, it is proposed that the quantity of gallates which may be added should now be increased tenfold, and the quantity of butylated hydroxyanisole fivefold. In the 1953 report the amount of antioxidant to be permitted in essential oils was the same as for edible oils and fats.

The new report specifies the addition of the following quantities of antioxidant: to edible oils and fats, 0.01 per cent of propyl, or octyl or dodecyl gallate or any mixture thereof, and not exceeding 0.02 per cent of butylated hydroxyanisole; to essential oils, 0.1 per cent of the gallates and of the butylated hydroxyanisole respectively. Butylated hydroxyanisole (up to 0.02 per cent) may be used in conjunction with the gallates (up to 0.01 per cent) in edible oils and fats; in the case of essential oils the total amount of antioxidant or mixture of antioxidants should not exceed 0.1 per cent.

Tablet Lubricants

K. Munzel and W. Kagi in *Pharm. Acta Helv.* 29, 53-71 (1954) from *C.A.* 48, 10295 discuss lubricants in the manufacture of compressed tablets which can be divided into true lubricants which improve the lubricating properties of the tablet mixture, and antiadherent (antisticking) ingredients which prevent the tablet surfaces from sticking to the metallic punches and dies. With the aid of a dispensing funnel, the weights of pure and lubricated granulated powders are determined and from the arithmetic mean the lubricating factors are calculated, indicating the

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increase caused by the addition of the lubricant. The relative standard deviation between the individual figures indicates the flow regularity of the granules owing to the addition of the lubricant and the degree of accuracy of the tablet dosage resulting from the compression of these lubricated granules. There is no difference in the action of lubricants with a hydrophilic or a lipophilic granulated powder. Certain substances, such as sodium chloride, which have natural flowing properties, are impaired by the addition of the usual lubricants. Shaken granules have better gliding properties than the pressure granules of the same drugs. The lubricating properties of both types of granules are, in certain cases, impaired to exactly the same degree. Of the substances tested Carbowax 6000 and talc have the best lubricating property; calcium and magnesium stearates produce a smaller improvement of flow; stearic acid and paraffin are not real lubricants. Mixtures of a true lubricant and an antiadherent (magnesium stearate talc or stearic acid talc) have advantages. The lubricating action increases in general with the amount of lubricant used. Substances showing a tendency towards conglomeration (magnesium and calcium stearates) impair flow in amounts of more than five per cent. The flow regularity of granules, expressed by a decreasing relative standard deviation, increases with increasing amounts of lubricant added; if the contrary results, one is dealing with an antiadherent. The character of the panels (paperboard or tin plate), along which the granules flow, has no influence on the lubricating properties and flow regularity. The distribution of the lubricants and antiadherents on the granules depends on the way these are applied; i.e. talc, being powdery, can be dispersed regularly on the single granules whereas stearic acid is distributed irregularly.

Stabilizing Liquid Extract of Ergot

I. Corubolo, M. Grims and V. Petricic (*Acta Pharm. Jugoslav.* 2, 58, 1952, from *C.A.* 48: 10299) found that the liquid extract from ergot was not completely stabilized by the addition of one per cent ascorbic acid. Addition of 1.5 per cent of ascorbic acid stabilized all alkaloids for one year if liquid was kept in a stoppered air-free bottle. An extract containing one per cent of ascorbic acid and in contact with air lost 40-60 per cent of alkaloids in six months; the blank without stabilizer lost 77 per cent in the same period of time. Quinine hydrochloride was found to be the best stabilizer. Changes in temperature from 5 to 20° C. as well as change in pH from 1.82 to 6.05 had no effect upon stabilizing action.

Solubilization of Vitamin A Palmitate

According to T. Nakazawa and R. Muneyuki (*J. Pharm. Soc. Japan*, 74: 858, 1954, through *C.A.* 48: 12374), solubility of vitamin A palmitate in the aqueous solution of various surface-active agents of the polyhydroxyethylene series was examined. A different rate of solubility occurred when the sample was added to the aqueous solution of surfactants and the mixture shaken, and when the sample and surfactant were mixed and diluted with water; in the latter method of testing, the solubility examined increases, the larger the lipophilic radical and smaller the hydrophilic radical of the surfactants.

Choline-Resin Compound

R. Kunin and S. Rothman, in U. S. Pat. 2,677,670 describe carboxylic cation-exchange resin in its H form treated with an aqueous solution of trimethylhydroxyethylammonium hydroxide until the suspension reaches *p*H 7-8. The product contains about 6 meqs. of the choline group per gram of dry resin and is free of the unpleasant taste of ordinary soluble salts of choline, yet it supplies the choline group when ingested. Choline carboxylates are useful therapeutic and pharmaceutical substances.

Antiseptic Toothbrushes

A process has been developed by the Gallowhur Chemical Corp. to render nylon and animal brush bristles antiseptic. The process which would treat toothbrushes, for instance, at a nominal cost per brush, also prevents growth of microorganism on butyrate resin handles as well. It involves a treatment of manufactured fibers and other components with a solution which has proved to be safe in actual use tests of toothbrushes.

The treatment does not alter the color, shape or size of the nylon and imparts no odor or flavor. The antiseptic properties last as long as the practical life of the treated article.

The Puratized (R) process fits into the conventional operations of brush manufacture. It involves the treatment of nylon with an organic mercury solution. It would take only one pound of solution treating about 3,000 toothbrushes.

Treated bristles completely inhibit the growth of representative types of bacteria and fungi when planted upon nutrient agar seeded with the particular microorganism.

Treated bristles and toothbrushes were leached for intervals ranging from 15 minutes to 32 days in running water at the accelerated rate of one volume per minute. The results showed that the bristles were highly antiseptic past the sixteenth day, and still showed small zones of inhibition at 32 days in spite of the severe leaching.

The effect of various chemical and physical agents upon the durability of antiseptic action of bristles was investigated. The results showed that the bristles retained antiseptic property after over 250 minutes of exposure to all of the above factors. There was a marked reduction in activity after 300 minutes, but definite bacteriostasis was observed even after 390 minutes. It is estimated that 300 minutes of brushing are equal to the life of a toothbrush under actual use conditions.

Sample toothbrushes were put into actual use on an experimental basis. They were employed with dentifrices twice daily, and bristles were sampled after 14, 30, and 150 days for bacteriostatic activity. After 14 days' use, no reduction of activity was noted; after 30 days, a reduction of 25 per cent occurred; the bristles were still antiseptic after 5 months' use when the tests were discontinued. No oral irritation or abnormal systemic effects were noted by the five users.

Five different colored brush handles of a butyrate-resin type were treated and found to be highly antiseptic to two test organisms even after 48 hours of accelerated leaching. Untreated handles exhibited no bacteriostatic activity. The resin colors were not altered by this treatment.

Storage after processing does not affect the antiseptic activity.

Guinea pigs and monkeys have been fed excessively large amounts of ground Puratized (R) bristles to determine any possible effects. After one month of daily feeding, no difference could be found internally or externally between the animal groups. The safety of toothbrush use has since been confirmed for large test populations of 200 adults and 50 children.

Perfumer's Shelf

Bulgarian Attar of Rose

Attar of rose is obtained from several varieties of roses possessing its scent. Among all the known roses none is more important to perfumery than the pink rose (Rosa damascena Mill.). Regardless of its origin, this rose thrives best in Bulgaria's so-called Rose Valley which is nestled between the Stara Planina and Sredna Gora mountain ranges. Owing to unique climatic and soil conditions in this part of Bulgaria, the pink rose thrives here as nowhere else in the world and without altering its variety gives attar of high yield and quality. The white oil-bearing rose (Rosa alba) is also cultivated in Bulgaria, although on a very small scale.

Bulgarian attar of rose owes its high value in perfumery to its aromatic properties which are closely connected with its physicochemical constants. Hence all researches aiming at the aroma's improvement are closely bound up with detailed investigations to establish these constants.

Various authors have studied the physicochemical constants of Bulgarian attar of rose. Past investigations have established these constants. However, these investigations were made in part on Bulgarian rose attar received in small "peasant" stills and in part on commodities, the purity of which was not guaranteed. In the best of cases the investigations were made on oils obtained by the authors themselves, but their number is insufficient to warrant any general conclusions about the constants of Bulgarian attar of rose.

During the past decade numerous tests were made to establish the physicochemical constants under modern methods of oil distillation. These tests included the constants of a great many genuine attars obtained every year in the different districts and installations of the rose-producing region under a variety of climatic and soil conditions. The attar of every typical district and locality was subjected to careful investigation. On the other hand, the tests covered also the constants of oils obtained at the various stages of the production process.

The following results and conclusions were obtained from part of the investigations of N. H. Nikolov (*P.E.O.R.*, Sept. 1954).

When speaking of the yield and quality of Bulgarian rose attar one should bear in mind that it represents the product obtained by steam distillation of the flowers and cohobation of the distillation waters. During the direct distillation of flowers in a Florentine flask part of the essential oil is separated; this is called decanted (raw, primary, green) attar and represents 28-47 per cent of the total. All the rest remains dissolved and emulsified in the primary distillation waters from which it is separated by means of cohobation. This part is called cohobated (soluble) attar and represents 52 - 72 per cent of the total rose attar.

There are considerable differences between the decanted and cohobated rose attars. The decanted attar has a lower specific gravity, a higher freezing point, a higher refractive index, a higher ester number and a lower ester number after acetylation.

High-grade attar of rose contains decanted and cohobated oils in the same proportions in which they are found in the flowers.

The quality of the rose attar greatly depends on the state of the flowers at the moment of processing. Part of the flowers are distilled immediately, while the rest is stored for a shorter or longer period, depending on the installation's capacity. This occurs usually when the flowers are in full bloom. Storage is a rather serious problem.

It has been established that changes in quality of the essential oil, with respect to its odor and physicochemical constants, depend to a large extent on the method of storing the flowers. Among other factors, meteorological conditions such as humidity and daily temperature exert a great influence.

From the data it is plain that processes occurring in flowers during storage, which are bound up with the changes taking place in the physicochemical constants of the attar obtained, are conditioned by meteorological factors. Thus in hot weather these processes develop rapidly from the moment of harvesting. The accompanying changes in the quality of the attar are linked with the constant diminution of specific gravity, optical rotation and ester number after acetylation, as compared to those of the fresh flower as well as with the constant increase of the refractive index, freezing point and acid number, percentage of combined alcohol, again as compared to those of the fresh flower.

On days with a normal temperature and adequate humidity of the air, one can note a continuous increase of the acid (slight during the first four to six hours) and ester numbers in comparison with those of the fresh flower.

Specific gravity, optical rotation and ester number after acetylation, or the percentage of free alcohol, increase during the first four to six hours and then gradually decrease. Freezing point and refractive index, on the other hand, decrease during the first four to six hours and then increase.

The attar yield changes likewise, constantly decreasing in the former case and increasing during the first four to six hours and then decreasing in the latter.

The same investigations enabled us to determine the changes occurring during the storage of flowers in cold and particularly in cold and damp weather. They are quite characteristic.

Attar is also distilled from Rosa alba, although in very small quantities. This attar is inferior to the pink rose attar. The difference in grade varies within wide limits, depending on the regions where the roses are cultivated. The attar of the Rosa alba has low specific gravity, low optical rotation, a high freezing point and a low ester number. Its yield is 42 - 56 per cent of that of the pink rose. It too depends on altitude and climate.

TOP NOTES by Fritzsche

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A THOUGHT for the Month

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or Holly

January—Carnation
or Snowdrop

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MULTIPLY the operation pictured above by *every lot* of oils and aromatics that enter our plant and you get some notion of what it means to guarantee, unconditionally, the quality of our merchandise. Multiply this figure again by the half dozen or more *different* tests each lot is subjected to and you gain an additional idea of what such assurance involves. Then follow along adding to this the meticulous care that is practiced in our handling of an order from the time it is entered until it leaves our plant, expertly compounded, carefully checked, packaged, routed and shipped—usually the same day—and you just can't help saying to yourself: "No wonder FRITZSCHE products never give me any cause for complaint!"

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KNOW SOMETHING, MOMMY? THIS MEDICINE HAS SUCH A NICE TASTE!

HOW much easier it is to administer a tonic or medicine when the patient is cooperative. And what induces readier cooperation than a taste that is pleasantly flavorful? Today, many pharmaceutical and proprietary medicine manufacturers accomplish this by apportioning substantial sums for the development of more palatable oral products. Of course, this allotment of funds is unnecessary for the simple reason that expert flavor development work, conducted in strictest confidence, is available to every one of these manufacturers *without charge or obligation.* Our Flavor Service will supply this for them. This service provides the laboratory and staff facilities, the specialized experience, the experimental materials and research essential to the complicated task of creating a flavor correctly compounded for compatibility, strength, stability, and suitability to the manufacturer's particular product. Why not let Fritzsche Flavor Service help you to achieve better palatability for your medicinal product on this very practical basis—*confidential . . . no cost . . . and no obligation unless you are fully satisfied with the results of our work.*

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The investigations made on the rose attar provide sufficient data on the attar obtained from petals and calyx, at the start and end of the picking season, in stills of varying shapes and constructions and, finally, on the attar distilled in different quantities of water.

While performing these tests on the attar constants, a thorough investigation was also made of the rose attar obtained in the course of the past ten years.

Studies were made of the physicochemical constants of all types of rose attar obtained every year in the different parts and installations of the rose-producing region. As already mentioned, the attar was tested under different and typical climatic and soil conditions and in every more typical locality. The following are the limits established for the physicochemical constants:

1. Appearance	Highly mobile fluid
2. Color	Yellow to yellowish green
3. Scent	Characteristic rose attar
4. Specific gravity at 30° C.	0.848-0.861
5. Refractive index at 25° C.	1.4530-1.4640
6. Optical rotation, 100 mm	—2.2°-4.8
7. Freezing Point, C.	16.5°-23.5°
8. Acid number	0.92-3.75
9. Ester number	7.2-17.2
10. Saponification number	8.12-20.95
11. Ester number after acetylation	197-233.3
12. Free alcohol, as geraniol per cent	62.9-75.5
13. Combined alcohol, as geraniol per cent	2.0-4.7
14. Total alcohol, as geraniol per cent	65.8-78.2
15. Stearoptene content per cent	15-23

The rose attar whose physicochemical constants range within the above limits possesses characteristic fineness and pleasant scent.

Comparing these constants of Bulgarian rose attar to those cited by various authors in the past, we note certain differences which clearly show that the rose attar has improved in quality in recent years. Only high-grade attar, distilled from first-rate flowers and properly processed, has constants ranging within the above limits. This excludes all attar obtained from faded, dried or improperly stored roses as well as from buds and from the Rosa alba.

Orthodon Essential Oils

Y. Fujita and T. Ueda (*J. Chem. Soc. Japan*, vol. 75, p. 764, 1954) report that Orthodon methylchavicoliferum gave 0.25 per cent of oil which contained three per cent of gamma terpinene, 75 per cent methylchavicol, two per cent terpene ester, 10 per cent calliophelene, five per cent cadalene and eudalene type sesquiterpene and five per cent cadalene type sesquiterpene alcohol. Steam distillation of 0. geranylacetatiferum gave 0.22-0.48 per cent of oil (118 grams) which gave on fractional distillation 80 per cent geranyl acetate, 2.5 cc. of a fraction containing *d*-limonene, 2 cc. of an unidentified terpene alcohol and 8 cc. of an unidentified cadalene-type sesquiterpene. (*Through Chemical Abstracts*).

Blenders

A blender as described in the *Giraudan Flavorist* is a flavor material that has the property of improving the finished product without contributing any outstanding flavor characteristic of its own. The field most familiar is the liquor industry in which blenders of various types are commonly used. Heavy bodied sherries for the addition to blended whiskeys is a standard item. The addition of certain natural gums, fruit products and natural plant extractives to liqueurs and flavored brandies is standard practice, and these additions result in a smooth, finished drink, lacking a raw alcohol taste.

Sometimes it is desirable for the blender or blending agent to contribute something flavorwise, but it should be subordinate to the primary flavor. Peach, both natural and imitation, finds effective use in this connection, and it is a contributing note in many alcoholic beverages, both foreign and domestic.

The use of blenders, however, is not limited to alcoholic products. It may be the buttery note in a shortening, the nuttiness in a processed lard or the full bodied effect obtained in a fruit punch. It is the blender that "marries" the various flavor components of a manufactured product into one desirable flavor effect. Vanilla and its synthetic counterpart, vanillin, is one of the most widely used both by the flavor chemist and the housewife.

Peppermint and almond oil have remarkable effects in trace quantities in many synthetic flavor creations because of their ability to "fill out" or "round off" a formulation. A good flavor formulation is invariably well-balanced and blended when received by the manufacturer but often does not do the job hoped for. When flavor seems to stand apart in a food or beverage product, or when an unusual character subordinate to the main flavor characteristics is desired, blenders very often give the desired effect.

Oil of Zataria Multiflora, Boiss

Zataria multiflora, Boiss (Saatare-Farsi), a native of Arabia and Persia, is a small herbaceous plant and belongs to the Natural Order Labietae. Dymock mentions extensive use of the drug in Indian medicine and notes the occurrence of an aromatic essential oil having a minty odor in its leaves. Steam distillation of the drug, as reported by Farooq and Gupta (*P.E.O.R.*, September, 1954) yielded 0.6 per cent of a golden yellow oil having a characteristic odor, bitter and sharp taste, biting action on sensitive parts of the skin and rich in carvacrol.

The oil boils between 172-240° at an atmospheric pressure leaving a brownish red viscous residue and gives a clear solution with 2.5 volumes of 70 per cent alcohol. It contains: total phenols 69 per cent made up mainly of carvacrol with traces of thymol, neutral constituents 31 per cent, rich in p-cymene (17 per cent) besides borneol (three per cent).

In addition, three (not yet fully characterized) substances have been found to be present in the oil: (i) a phenol; (ii) an alcohol; and (iii) an acid. The phenol (i) is a deep yellow viscid liquid with a creosote-like smell (b.p. 234-35°/746 mm; $d_{28°}^{28°}$ 0.98112; $n_D^{28°}$ 1.51774), optically inactive, insoluble in water and soluble in 3.5-4 parts of 65 per cent alcohol. Its alcoholic solution gives a deep violet color with ferric chloride. It yields 3:5 dinitro-benzoate, m.p. 93-94°. The yield from the present source is as high as 0.5 per cent. It is probably a new phenol and is therefore tentatively named "Zatarol." The alcohol (ii) is a colorless oily liquid (two per cent; b.p. 205-6°; $C_{10}H_{16}O$) tentatively named "Zatarinol;" its 3:5 dinitrobenzoate melts at 125-130°. The acid (iii) is a pale yellow liquid (0.6 per cent; b.p. 209-11°; $n^{25°}$ 1.4888).

Memo to executives, purchasing agents, technical people—

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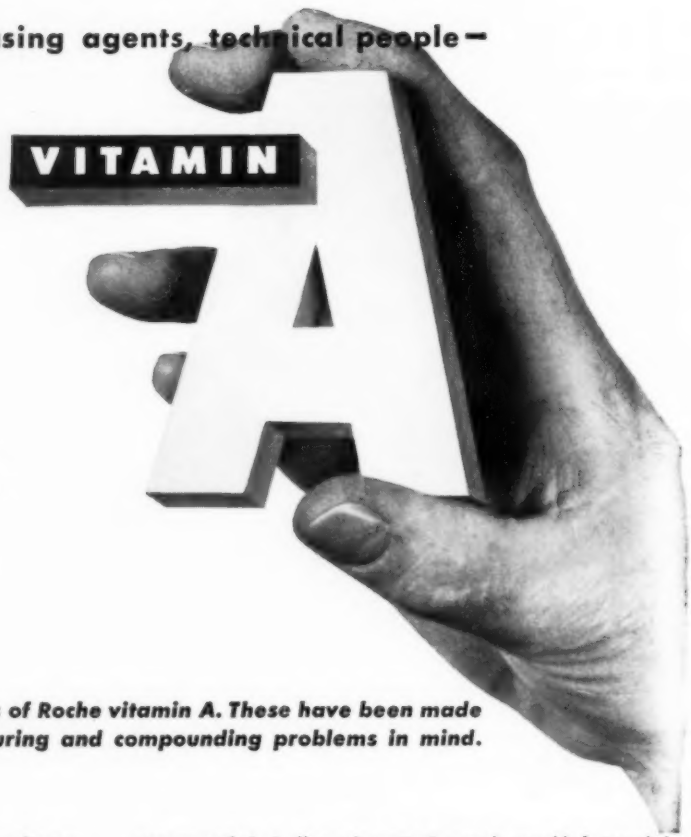

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Type P1MO vitamin A palmitate—1,000,000 U. S. P. units per gram, standardized by addition of edible vegetable oil. This type is a highly refined product containing well-proven stabilizing factors of the Roche synthesis. *Experience has shown that this type meets the great majority of pharmaceutical requirements.*

Type P1MO/BHA vitamin A palmitate—Same as Type P1MO above plus the antioxidant—butylated hydroxyanisole (10 mg. per 1,000,000 units of vitamin A).

Type A1MO vitamin A acetate—1,000,000 U.S.P. units per gram, standardized by addition of edible vegetable oil. Contains well-proven stabilizing factors of the Roche synthesis.

Type P1.3 vitamin A palmitate—ranging between 1,350,000 and 1,450,000 U. S. P. units per gram. Does not contain any oil addition. Ideally suited for oil-free preparations. Stability is similar to type P1MO.

Special Types:

Type P1.8 vitamin A palmitate—1,650,000 to 1,800,000 U. S. P. units per gram.

Type A2.9 vitamin A acetate—2,800,000 to 2,900,000 U. S. P. units per gram.

These special types are available for research and special production in which special handling can be provided.

Packaging—All liquid types of Roche vitamin A are packed under inert gas in seamless containers. Nominal quantities are shipped in wide-mouth aluminum bottles. For large orders, a specially-designed aluminum transport can holding 50 kilos is recommended. A dispensing attachment is provided, permitting the withdrawal of any desired volume or weight while maintaining a constant pressure of inert gas inside the container. Special blends can be made and stored within this special can.

Samples are yours on request; ask your Roche representative or write the Vitamin Division.

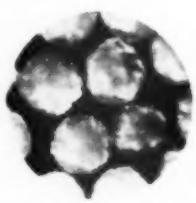
DRY TYPES

Type 500 dry vitamin A acetate. 500,000 U. S. P. units per gram.

Type 325 dry vitamin A acetate. 325,000 U. S. P. units per gram.

Type 250 dry vitamin A acetate. 250,000 U. S. P. units per gram.

Each of these types is available in two mesh sizes: No. 40 and No. 60. Type 325 is also available in No. 80 mesh. They are designed for use in dry preparations—tablets, capsules, vitamin-fortified powdered supplements—where mixing with dry granulations is possible with minimum loss of potency.



Roche dry vitamin A acetate, magnified. Note uneven edges—an advantage in tableting.

Other types of Roche dry vitamin A acetate in combination with vitamin D_2 are also available. Information on request.

Packaging. All types of Roche dry vitamin A are packed in polyethylene bags in drums or 2 kilo Tamperpruf metal containers. Small quantities in amber screw-cap bottles.

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Abreast of the Markets

Bromides up One Cent

Ammonium, potassium and sodium bromide were all increased one cent a pound last month, owing to the higher costs of production. The prices now are, respectively, 37 cents, 34 cents and 34 cents a pound for each product.

Peppermint Oil Off

Peppermint oil prices dipped somewhat early last month; however, they advanced later because there was very little high-test material available for blending with the low-grade oil. The demand is expected to pick up early this year, with the result that prices will probably continue to increase accordingly.

The natural oil ranged from $8.50 to $8.65, and the redistilled oil, from $9 to $9.25 a pound.

Gum Arabic Firm

Gum Arabic was selling at 21¾ cents a pound late in December and was extremely tight because of the meagre stocks available. Spokesmen expect the market to ease off some time in January as the new-crop period in February and March approaches.

Pine Needle Oil Higher

While the shipping prices for pine needle oil have been rising at the origin, the local figures have been advancing accordingly, with the quotation now extending from $3.00 to $3.10 a pound.

Renewed Interest in Ipecac

Because of a great increase in demand for ipecac root, the material advanced to $8.25 a pound last month. There is not enough material to handle all the needs at the present time.

World Shortage in Beeswax

Several factors have brought about a shortage in beeswax, according to sources in the industry. For example, the insecticide DDT has reduced the number of bees to such an extent that this development has markedly cut down on the resultant wax that they produce.

Chile's production of beeswax has been on the wane for several years, while in Brazil that country now consumes all of its wax locally, leaving none for export.

Bois de Rose Tight

The upper limit of bois de rose oil advanced to $5.25 a pound, with spot supplies being extremely limited. At the same time, demand for the item was less at the end of the year, a factor which tended to minimize somewhat the firm nature of the oil.

Spearmint Oil Firmer

Producers of spearmint oil in the country began to advance their prices last month, with the result that spot material is expected to advance currently. By the end of last month the oil was selling with the range extending from $4 to $6.50 a pound.

Caraway Oil Higher

Caraway oil advanced to $4 a pound last month, owing to the fact that no more low-price oil was left on the spot market at that time. No relief is expected for a long time, as one of the chief factors in the higher price is the greater cost of the caraway seed—and this is expected to remain at firm levels for many months.

Caffeine Demand Active

With the seasonal demand for caffeine now at its peak, inquiries for the item were reported on the brisk side early in January. Spot stocks are large enough to handle the expected inquiries for the next few months.

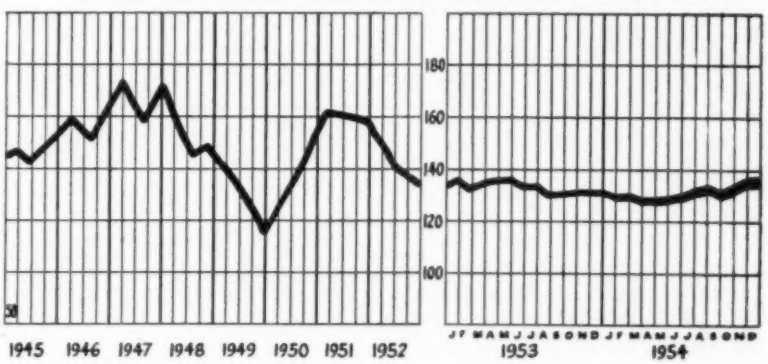
Citronella Oil Sluggish

Demand for citronella oil is off at the present time, in accordance with its seasonal pattern, since it is required more heavily during the summer. No change occurred in price over the previous month's figures.

Menthol Sluggish

The price of menthol was 10 cents lower during the first part of this month, ranging from $7.65 to $8 a pound. The supplies on hand were said to be sufficient to handle all needs at that time, and new-crop material was expected to be available some time in February.

50 RAW MATERIALS—WEIGHTED PRICE INDEX. 1926 = 100.



The price index of fifty commodities for December advanced from 132.0 to 132.3

Animal Health

Canine Virus Distemper Prophylaxis with Gamma Globulin

Trials in the field have shown that the specific activity of the purified distemper antibody in the state of vacuum-desiccated gamma globulin is very high. Moreover, immune gamma globulin has distinct advantages over distemper antiserum. As described by N. M. Larin and S. F. J. Hodgman (*Vet. Rec.* 66:549, 1954) these are as follows:

The use of immune gamma globulin minimizes the danger of transmitting canine hepatitis virus which might be present in the antiserum. Gamma globulin contains no preservative and, therefore, it can be intravenously inoculated if, and when, required.

Vacuum-desiccated gamma globulin, sealed in ampoules under vacuum, can be stored in a dark place at room temperature much longer than antiserum. Experiments made on storage of gamma globulin at 37° C. have shown that this temperature does not affect the preparation.

Gamma globulin can be made bivalent, *e.g.*, active against both canine distemper and hepatitis viruses, or even polyvalent, *e.g.*, active against the above viruses and those bacteria often complicating distemper.

Gamma globulin is 10 times the concentration of the antibody, compared with antiserum. One dose of desiccated gamma globulin, which is equivalent to 10 cc. of antiserum, can be easily dissolved in as little as 1 cc. of distilled water. This simplifies the use of the preparation if compared with antiserum, *e.g.*, in a case when it is desirable to inject a dog with gamma globulin equal to 2 to 5 cc. of antiserum, the corresponding doses of concentrated gamma globulin will be only 0.2 and 0.5 cc. When it is necessary to inoculate a dog with an amount of gamma globulin equivalent to 50 cc. of antiserum the dose of gamma globulin will be 5 cc. only.

From the point of view of production the cost is comparable with that of antiserum because the volume of antiserum used is reduced 10 times at the beginning of the process. This naturally simplifies all further stages of production.

Phenylbutazone in Arthritis

Phenylbutazone is a totally new orally effective compound with an exceptionally broad field of usefulness in the treatment of arthritis and allied disorders. It is one of a group of pyrazole derivatives developed in 1946 during the search for a drug with the therapeutic properties of aminopyrine but without its toxicity. Chemically, it is 3,5-dioxo - 1,2 - diphenyl - n - butyl pyrazolidine.

In experimental animal studies, this compound manifested strong analgesic and antipyretic properties. In addition, it exercised a potent "anti-inflammatory" effect both in delaying and minimizing local tissue reactions produced by chemical and physical irritants. Thus, its potentialities in the field of painful musculoskeletal disorders appeared therapeutically sound. Broad clinical investigations in the United States and Great Britain in the field of human medicine have found the range of usefulness of this drug in the following conditions: gouty arthritis, rheumatoid arthritis, osteoarthritis, psoriatic arthritis, spondylitis, fibrositis, myositis, neuralgia, sciatica, and scapulo-humeral periarthritis.

Clinical studies by L. L. Lieberman (*J.A.V.M.A.*, vol. 125, p. 128) in about 30 dogs having posterior paralysis (more recently described as the "vertebral disc syndrome"), painful fractures, arthritis, and painful injuries to the limbs and joints gave results as satisfying as those reported in similar conditions in man. Phenylbutazone has not affected the posterior paralysis which has been diagnosed as postencephalitic (distemper).

Demodectic Mange Treated with Trypan Blue and Furaspor

H. T. Weir (*Journ. A.V.M.A* 125:66, 1954) reports that the use of trypan blue internally and furaspor concentrate externally is beneficial in the treatment of demodectic mange. These drugs are apparently nontoxic in the recommended dosage but the animal may stay blue for three months. The animals under treatment seemed to improve in general health and spirits after the third or fourth injection. A solution of B-complex vitamins was given intravenously to start each injection, since the dogs were usually debilitated and also to be sure the needle was properly placed before injecting the trypan blue.

Neomycin-Polymyxin B in Bovine Mastitis

This study made by A. B. Christian, J. R. Harris, F. S. Barr (*Journ. A.V.M.A.* 125:299, 1954) showed neomycin sulfate and polymyxin B sulfate in an oil-in-water emulsion to be an effective therapy for mastitis caused by Streptococcus, Staphylococcus, Pseudomonas, Proteus, and coliform organisms. However, additional cases of Pseudomonas infection should be treated with this combination fully to establish its value against this organism. Also, a single infusion of this combination in an oil-in-water base produced immediate and prolonged antibiotic levels with no apparent irritation.

Anthelmintics

In general the modern anthelmintics are superior in efficiency, more specific, and often less expensive than some of the older drugs such as Areca nut, Santonin, Kamala, Oil of Chenopodium, the arsenicals, carbon tetrachloride, copper sulfate, nicotine sulfate, turpentine, etc. The aim nowadays is to produce a drug which will have a high efficiency and a low toxicity.

Several new anthelmintics have been

described during the last 15 years and amongst these one can mention phenothiazine for strongyle control, hexachlorethane for liver fluke, diethylcarbamazine acid citrate for ascarids and filaria, dichlorophen which has the property of disintegrating tape worms in the intestinal tract, and hexylresorcinol for ascarids.

When searching for anthelmintics according to G. C. Brander (*Vet. Rec.* 66:539, 1954) one has to consider worms of what one might call two classes, (*a*) those worms which live in the alimentary tract and (*b*) those which live in the blood stream and other tissues of the host. Generally speaking, when the purpose is to destroy worms in the gut a drug must reach the portion of the intestine in which it is desired to act without being absorbed. Should it be absorbed, however, it must not produce toxic reactions in the host. In addition, a good anthelmintic should be effective at a low concentration and should not induce nausea, or any undue physiological reaction in the treated animal.

It seems probable that many of the present anthelmintics will eventually be replaced by drugs which are host specific and are so formulated that the active principle is released at the correct site of action.

Piperazine Carbon Disulfide Vermifuge

Evidence is given by J. W. G. Leiper (*Vet. Rec.* 66:596, 1954) from the medication of over 200 pigs that the stable compound of piperazine and carbon disulfide (V. 19) is an effective vermifuge for the removal of *Ascaris lumbricoides* and *Oesophagostomum denialum* and it has the advantage that it may be given in wet or dry food without interfering with normal husbandry. In an acid medium such as gastric juice V.19 decomposes into its components piperazine and carbon disulfide both of which are known anthelmintics. All ages of pigs from five weeks old to in-pig sows have been medicated. Tests were carried out at dosage rates of 75 to 150 mg. per kg. live weight and there was no sign of toxicity. Critical tests in pigs at 100 mg. per kg. showed 100 per cent removal of Ascaris, 86.5 per cent of the Oesophagostomum. In field tests based on egg counts, 125 mg. per kg. was necessary to reduce the Ascaris egg count by 96 per cent. Toxicity tests show that the LD 50 of this compound is approximately one 20th that of sodium fluoride.

Vaccine for Bluetongue

Vaccine was developed recently for combating bluetongue, a disease of sheep, by Department of Agriculture, state of California, and private industry. Four laboratories now are making and distributing the vaccine for this disease which has been reported in five western states. Bluetongue is last to come under control of four animal diseases that were causing trouble this time last year. Status of other three: Hyperkeratosis in cattle has disappeared, scrapie in sheep is dormant, and vesicular exanthema in hogs is retreating.

Cuprous Iodide in Feeds

New salt additive may make it easier for farm animals to resist goiter. Cuprous iodide was suggested by Armour Research Foundation biochemists to replace potassium iodide in goiter-preventing salt. Insoluble in water and more stable as a compound, new additive won't leach out of animal feeds by exposure to moisture. Cuprous iodide also may find use in table salt for human consumption because potassium iodide sometimes decomposes even without moisture.

Phenothiazines and Horse Strongyles

Phenothiazine and 23 related compounds were tested against horse strongyle larvae and eggs in feces by N. D. Levine and V. Ivens (*Am. J. Vet. Res.* 15:349, 1954). Phenothiazine itself killed or prevented the development of larvae in feces at a concentration of 0.025 M. (molar) (0.5 per cent). Only one of 11 derivatives, the tetrapotassium salt of 1,3,7,9 - phenothiazinetetrasulfonic acid - 5,5 - dioxide, was effective at 0.1 M., the highest concentration tested. Of the analogs tested, phenoxathiin and chlorophenoxathiin were active at 0.025 M., pyocyanin dihydrochloride at 0.005 M., phenazine and phenoxazine at 0.01 M., and xanthydrol at 0.05 M. Phenoxathiin-10,10-dioxide, xanthone, and 2-aminophenazine were not effective at 0.1 M. Two related aliphatic compounds, hexyl - *iso* - octyl amine and di-*n*-hexyl amine, were toxic at a concentration of 0.01 M. Modifications of the phenothiazine molecule had varying effects on the toxicity of the compounds produced. Substitution on the nitrogen atom of phenothiazine decreased or destroyed its toxicity. Replacement of the nitrogen atom by oxygen or of the sulfur by nitrogen did not decrease its toxicity. Replacement of one of the heterocyclic atoms of phenothiazine by a carbonyl group and the other by an oxygen atom or a methylene group destroyed or greatly reduced toxicity. In the former compound, reduction of the carbonyl to the corresponding secondary alcohol partially restored toxicity.

ACTH—B_{12} for Canine Distemper

Distemper in dogs can be checked by a drug that combines a massive dose of antianemia vitamin B_{12} and the antiarthritis pituitary gland hormone, ACTH.

This good news for dog owners appears in an announcement from the Armour Veterinary Laboratories, Chicago through *Science News Letter*.

No one knows yet why this vitamin-hormone combination works. Studies are now under way to find this out. However, in tests on more than 600 dogs, the drug has stopped distemper in its course, in most cases, both in the acute stage and in the late, usually fatal, spinal cord complications.

The formula, devised by the Armour staff, has been named ACB_{12}, and is now going on the market to licensed veterinarians.

Thyroxine for Improved Milk Yield

The temporary stimulation of declining milk yield in dairy cattle is shown by H. D. Kay (*J. Minist. Agric.* 60:564, 1954) to be best achieved by feeding pure synthetic thyroxine mixed with the concentrates ration. Pure *l*-thyroxine appears to be preferable in most respects to iodinated casein as an agent for this purpose. Periods of treatment should not exceed six to eight weeks. Older cows give better results than younger ones. Provided the amount does not exceed 80 mg. per day during the period neither the immediate nor the long-term effect on the health of the cows is significant (at least in well-managed herds). If twice the amount is fed adverse effects may follow. The total lactation yields are not markedly affected by thyroxine treatment.

ACTH in Mastitis

In a case of acute bovine mastitis due to *Escherichia coli* as reported by W. B. Durrell (*Journ. A.V.M.A.*, 1954, p. 373), adrenocorticotrophic hormone was of great value in promoting recovery. It alleviated stress and, in combination with intensive antibiotic and supportive therapy, apparently created a synergistic action which suppressed a hopelessly severe infection.

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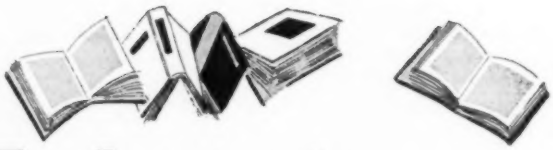

Industry's Books...

Green Book—1954-55—Buyers Directory, Forty-second Annual Edition, *published as part of annual subscription to the weekly newspaper, Oil, Paint and Drug Reporter, 1584 pp., handbook size, Schnell Publishing Co., Inc., 30 Church St., New York 7.* This well-known buyers directory needs little or no introduction to the industry it serves. As heretofore this directory is divided as follows: Part I—Chemicals and Related Materials. Part II—Technical and Commercial Services. Part III—Addresses of Suppliers. The "Green Book" has always been popular and widely used not only because it is kept right up to date on new products and supplier listings but also because of its easy to handle format.

Organic Chemistry, *Second Ed., Reynold C. Fuson, Professor of Organic Chemistry, and H. R. Snyder, Professor of Chemistry, University of Illinois, 544 pp., John Wiley & Sons, Inc., New York, (1954), Cloth,* **$6.50.** In the first third of this book the reader is introduced to the structure and behavior of the principal types of organic molecules, given a comprehensive view of the content of organic chemistry, and prepared for the more advanced treatment given to individual topics in the book's subsequent sections. Theoretical considerations are emphasized, as are reaction patterns—with specific reactions being grouped according to type rather than on the basis of a formal classification of raw materials or end products. Extensive treatment is given to polymers and polymerization. Special effects of reagents are explained in detail. Attention is focused on the reactions of functional groups. Aliphatic and aromatic compounds are taught simultaneously.

Successful Commercial Chemical Development, *H. M. Corley, Editor-in-Chief, 374 pp., John Wiley & Sons, Inc., New York, (1954), Cloth,* **$7.75.** This book is a group effort. It was authorized and sponsored by the Commercial Chemical Development Association. It represents the thinking of many people. No chapter is the work of any one individual. Each one is the work of a committee and does not represent the method of operation in any specific company. The purpose for which the work was undertaken is to document in one volume the most enlightened, present-day knowledge of the important principles of every essential step, as

well as the pitfalls to be avoided, in selecting promising new chemicals and rapidly developing them to the stage of economic importance. There is a group of factors which determines new product project desirability at any development stage. These are shown on a very comprehensive chart.

Elements of Food Engineering, *Vol. Three, by Milton E. Parker, Consulting Food Engineer, with the collaboration of Ellery H. Harvey, and the late E. S. Stateler, Illinois Institute of Technology, 241 pp., Illus., Reinhold Publishing Corp., New York, (1954), cloth,* **$6.75** Published in three volumes, this book treats the production, preparation, processing, handling and distribution of foods from the unit operation and unit process points of view. Volume 1 outlines the engineering factors involved in food processing and describes in detail the agricultural and nutritional aspects of food production, the extent of the food processing industries, major classifications of foods and refined foods processing. Volumes 2 and 3 present a unified, coordinated discussion of unit operations involved in assembling and preparing raw materials, and discusses such aspects of raw material conversion as mixing, heating and refrigeration. Volume 3 continues the discussion of raw material conversion such as evaporating, drying and dehydration, and covers fully the treatment of final products.

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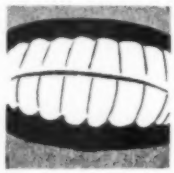
Readers' Questions . . .

Cream Hair Rinse: *Some time ago you published a formula for a cream hair rinse containing a quaternary ammonium compound. I have checked through my back issues of* DRUG & COSMETIC INDUSTRY, *but I do not seem to find it.* Chicago.

I think the preparation you have in mind, a cream hair lotion which leaves the hair soft, lustrous and easy to comb, is made from:

Quaternary ammonium compound	**4 per cent**
Glyceryl monostearate	**3 " "**
Water, to make	**100 " "**



Denture Cleaner: *I would like to obtain a reliable formula for making a brushless denture cleaner for false teeth, a powder form in which the dentures are soaked to remove mucus films, discolorations, etc.* SPENCERPORT.

I think the following powder, as recommended by Grossman, will meet your needs:

Sodium perborate	**60.00 Gm.**
Borax	**120.00 Gm.**
Menthol	**0.65 Gm.**

Dissolve a teaspoonful in a tumblerful of hot water and allow the denture to remain in the solution overnight.

Astringent Skin Lotion

We are interested in preparing an astringent skin lotion containing either ethyl or isopropyl alcohol. The lotion is to be used to remove the excess fat or greasy substances from the face of individuals who have difficulty in removing this material in the usual course of washing the face with soap and water. We are anxious to find the most suitable percentage strength of alcohol and to learn whether acetone is a desirable ingredient in an alcohol astringent lotion. BALTIMORE.

Acetone, because of its toxicity, is not a desirable ingredient in skin lotions. Alcohol, either ethyl or isopropyl, should be present, in proportions up to 50 per cent depending upon the astringent "bite" thought to be desirable. From two to five per cent of

glycerine, propylene glycol or sorbitol should also be present for additional solvent power and a very small amount on the order of 0.2 per cent of a non-ionic surface active agent will help remove traces of fats and oils.

Self-Neutralizing Cold Wave: *Some few months ago there was an article in* DRUG & COSMETIC INDUSTRY *on cold permanent waving. In the article mention was made of a chemical which if added to the thioglycollic acid solution would make it unnecessary to use a neutralizer. I have unsuccessfully tried to locate this article. Will you be kind enough to advise just what this chemical is, and how it is incorporated in the permanent ware solution?* SHERMAN OAKS.

The compound in question is manganous chloride or a related compound. However, I should like to point out that the use of this material is covered by U.S. Patent 2,540,980.

Alcohol Labelling

Can you tell us about requirements for declaring on the label the percentage of alcohol present in the product? We note that competitive after-shave lotions make no mention of alcohol content. Is it possible that they are using isopropyl alcohol? NEWARK, N. J.

We got in touch with the Alcohol Tax Unit of the Treasury Department for a ruling in this matter. Except for rubbing alcohols, it is not necessary to declare the amount of alcohol or even its presence on the bottle label in a drug or cosmetic preparation. In some instances, however, complete labelling is required by the Food, Drug and Cosmetic Administration, and this may include the proportion of alcohol as an active ingredient.

Nail-Polish Formulas

One of our subsidiaries is very much interested in obtaining information on various types of nail polishes. Do you have such information available, together with formulas, suggested suppliers, etc.? CHICAGO.

An exhaustive article on the subject of "Manicure Preparations," by Harry Hilfer appeared in the December 1954 issue of "DRUG AND COSMETIC INDUSTRY," page 760 and provides all basic information required. You can judge from the complexity of the preparation and specialized knowledge required for manufacturing, as well as the substantial fire hazard involved, that you will do better by purchasing the finished nail polish in bulk from one of the suppliers advertising in this magazine.

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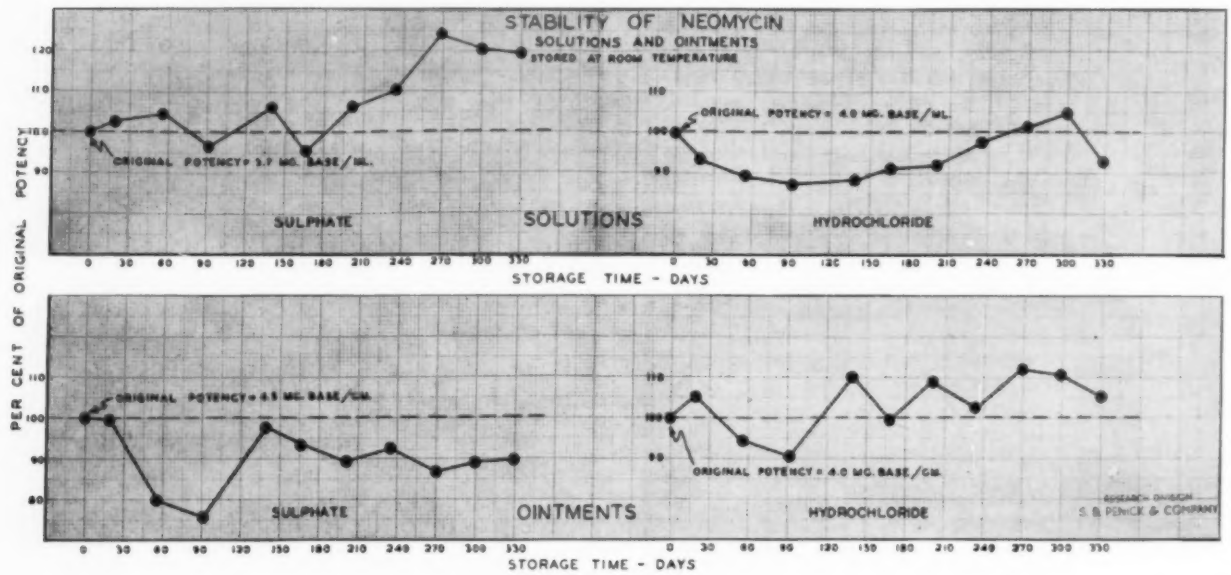
ASPECTS OF SEVERAL ANTIBIOTICS

(Continued from page 48)

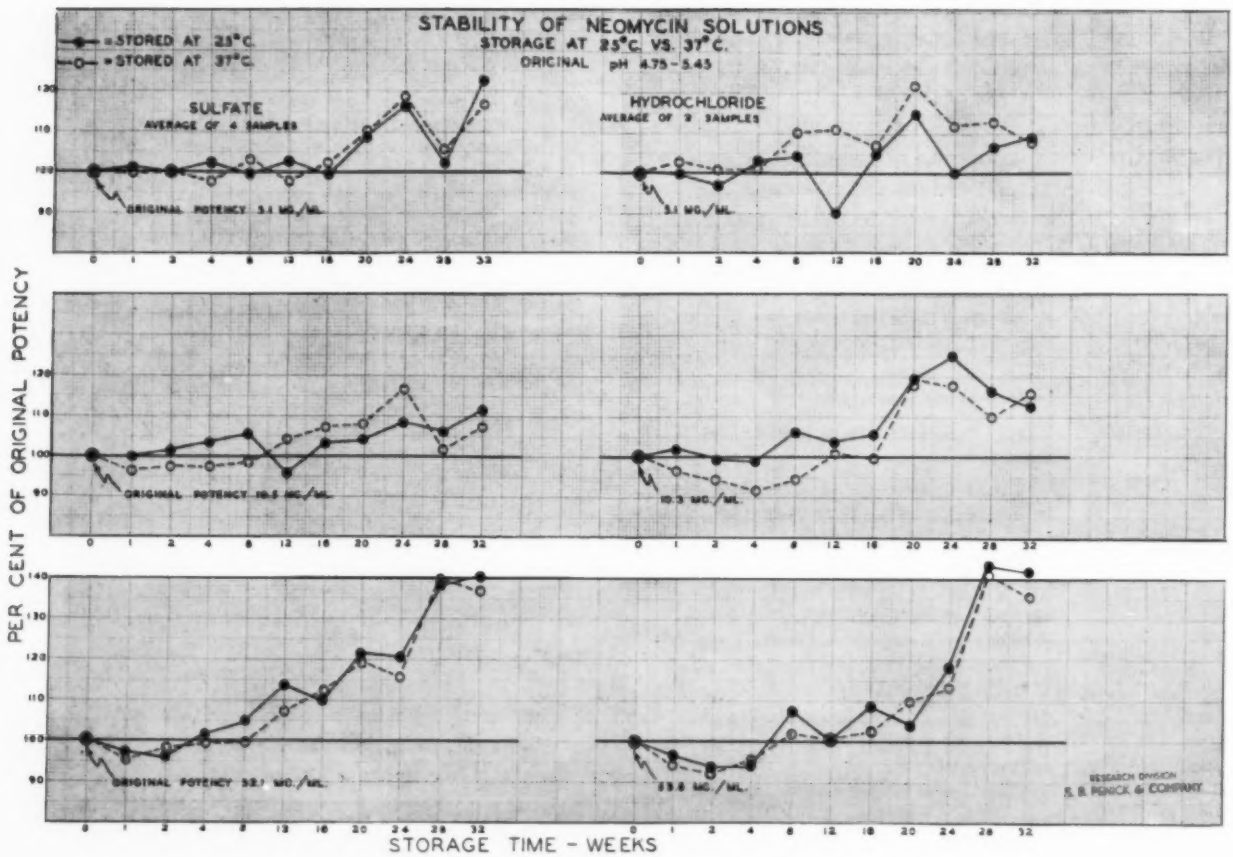
In Graph No. 1, neomycin ophthalmic solutions and ointments, prepared from both the sulfate and hydrochloride, were stored at room temperature and assayed periodically for nearly a year. No significant loss in potency was observed in any sample[115]

In Graph No. 2, the stabilities of neomycin sulfate and hydrochloride solutions are shown in varying con-

GRAPH NO. 1



GRAPH NO. 2



centrations when stored at room or elevated temperatures. No loss in potency was observed during 32 weeks of storage, nor did continuous exposure to high temperature affect the stability of the solutions. During the latter period of this study, a contamination was found in some of the solutions, which evidently occurred because of the intermittent opening of the vials. The apparent increase in potency of the higher concentrations is attributed to this contamination.

Spectrum: Neomycin is a broad spectrum antibiotic. It has been shown to have a wide range of activity, *in vitro* and *in vivo*, against Gram-negative and Gram-positive organisms, and is effective against some strains of both Proteus and Pseudomonas, especially if the antibiotic is employed in sufficiently high concentrations.[105-116-117-118-119-26-17-74] While Gram-negative bacilli, especially, exhibit a wide range of susceptibility toward neomycin, the drug is said to have no effect against fungi and viruses.[74]

Detailed tables referring to the antibacterial spectrum are also given in the literature.[120-121]

Neomycin is said to be bactericidal in a concentration equal to or only slightly higher than that in which it is bacteriostatic.[122-123] Its antibiotic activity does not seem to be affected by the action of micro-organisms. It is not inactivated by cysteine, but its potency is reduced by oleic acid.[74]

Absorption and Excretion: While there have been reports on the parenteral administration of neomycin in the treatment of urinary tract infections, tuberculosis, etc.,[124-125-126] the antibiotic is not clinically used for systemic treatment because of reported hepatoxic and ototoxic properties,[127-26-126-128-129-130] and thus avoids the penalty of inducing sensitization to agents which might be required for later treatment of more serious systemic infections.[131] Furthermore, its topical application does not result in sufficient absorption to make systemic toxicity a threat.[74-14]

Its extremely low rate of absorption is of no significance unless it would be applied to large denuded areas for prolonged periods of time.[132] In case of very extensive involvement, one viewpoint is that the topical treatment should not be continued for more than six to eight days.[107]

This very low rate of absorption, in which case less than three per cent is absorbed from the gastrointestinal tract, is also responsible for the virtual nonexistence of toxicity when used orally;[133-133] especially since this same amount is also excreted in the urine, and the balance in the feces,[74] and the antibiotic does not accumulate in the body tissues.[127-134]

These facts bear out the findings of many that toxicity following topical application or oral administration has not been noted.[135-136-137-17-76]

Dermatological Use: In some of the early published work on neomycin used topically, 200 clinical cases

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were first reported,[138] followed by a report totaling 675 cases; with the conclusion that neomycin was more effective for certain skin infections than other topical agents.[139]

Also, in some later dermatological studies with neomycin, in addition to the confirmation of its valuable effects in the treatment of two hundred sixty-four patients with various types of cutaneous pyogenic infections, *in vitro* tests indicated that the drug is superior to other drugs which were tested against hemolytic *Staphylococcus aureus*, hemolytic *Staphylococcus albus*, Pseudomonas and Proteus infections; but its *in vitro* activity against hemolytic streptococci is exceeded by bacitracin and some other antibiotics.[26,139,235]

Since then, many other published reports have further confirmed the highly satisfactory effects of neomycin in the treatment of cutaneous bacterial infections, especially when applied either as an ointment or in aqueous solution.[34,138,140,136,141,123,142,14,17,143,33,235]

One of these groups of investigators not only considers neomycin a very effective and safe antibiotic for topical use in cutaneous pyogenic infections, but also calls attention to this antibiotic's broad spectrum, solubility, stability, and apparent low potential for irritant and/or sensitization reactions.[235]

Other clinicians, while agreeing that neomycin is significantly effective against infectious pyogenic dermatoses, stress that the drug should be utilized in conjunction with necessary skin debridement, cleansing, and normal skin antiseptic hygiene.[123,7]

Thus, today neomycin more than ever continues to occupy an important place in the therapy of skin diseases.[22]

Sensitivity: As in the case with bacitracin applied topically, neomycin rarely induces sensitivity.[131,17,26,123] It can be used generally without fear of allergic reactions,[123] and it is well tolerated by patients known to be sensitive to certain other antibiotics.[74]

In the previously mentioned 675 cases treated for skin infections, the patients with atopic dermatitis, stasis dermatitis, and seborrheic dermatitis were surprisingly tolerant to the drug.[139] In another series of 264 patients, not a single instance of allergic sensitivity and/or primary irritant reaction was noted, and patch test reactions were completely negative in all cases.[26]

In a series of 88 cases of pyodermas treated with neomycin-erythromycin ointment, no cases of primary irritation or sensitization were found.[144]

In still another study of 335 patients, employing neomycin ointment and neomycin cream, only two patients showed irritation; one due to the ointment and the other to the cream. In both instances the medications were stopped, neomycin lotion was substituted, and the irritation and infection cleared.[107]

These few instances would indicate that some degree of care should be paid to the nature of the bases used; and, indeed, sensitivity to certain bases such as the synthetic waxes has also been implied by one investigator.[145]

Other Local Uses; Nasal and Ophthalmic: Partly in

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GHATTI
KARAYA
(INDIAN)
LOCUST
(CAROB FLOUR)
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view of its effectiveness against certain strains of both Proteus and Pseudomonas infections, it is felt that neomycin assumes considerable importance in infections of the nasopharynx; because of the tendency of these organisms to emerge as dominant strains in such patients undergoing treatment with other common antibiotics.[131-119-26] It is felt, also, that its value in nasal preparations is increased because it has been found to be remarkably free from inducing sensitization.[26]

Tests with neomycin in solution, for ophthalmic use, have also demonstrated the drug to be non-irritating.[146-147]

Oral Administration; Intestinal Antisepsis: The need for a really effective intestinal antiseptic was first noted more than 75 years ago,[147] and it has only been in the past dozen years that a reasonably successful advance was made; with the advent of one of the sulfa drugs.[148-130]

Now, with the realization that neomycin can be used for intestinal antisepsis, and the outstanding successes reported with this antibiotic, it is felt that a most useful and worthwhile drug has been added to the all too few medicinal agents available for this purpose. It has recently been accepted for intestinal use, in New and Nonofficial Remedies.[149]

As mentioned before, neomycin is virtually non-toxic when administered orally. The study of many clinical cases has borne this out, one group of investigators noting that when large oral dosage up to 10 Gm. a day was administered, the amount absorbed from the intestinal tract was negligible. This non-absorption property is a great advantage in intestinal surgery and in the treatment of other intestinal bacterial infections, because the drug remains in a localized area where it exerts prolonged and concentrated antimicrobial effects toward Gram - negative and Gram - positive bacteria.[17-135-76-130]

Some of the clinicians who have administered the antibiotic orally, in preoperative preparation of the bowel for surgery, have employed doses of 1 Gm. every four hours for 24 hours before operation, and also in a single 4-Gm. dosage 24 hours preoperatively; with the finding that neomycin effectively suppressed all intestinal bacteria.[133]

It is said that neomycin can be regarded as a close approach to the ideal for intestinal antisepsis; being the most effective antibiotic for this purpose.[76]

One important group of investigators[135-150] with this view has stated that the ideal intestinal antiseptic should possess the following characteristics: "It should have a broad bacterial spectrum, be rapid in action, and prevent the development of resistant bacterial variants. The antibacterial agent should be sufficiently potent so that it can be given in a relatively low dosage. It should either be non-toxic or be so poorly absorbed from the gastro-intestinal tract that although the substance is ordinarily toxic, it is not absorbed in sufficient quantity to give toxic reactions. . . . The agent should retain its antibacterial properties in the presence of foreign material, such as foods and the products of digestion, so as to allow the ingestion of sufficient food

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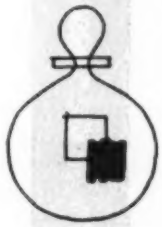
hydroquinone dimethyl ether



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Compound 77-B

STABILIZERS

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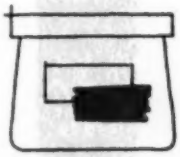

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and fluid to maintain and improve the patient's nutritional state without inhibiting the antibacterial action. Moreover, it should act in such a manner as to assist in the mechanical cleansing of the bowel without causing dehydration from excessive watery stools when the patient is on a low residue diet. Also it should be relatively water soluble and palatable. Furthermore, the antibacterial agent should not cause gastro-enteritis, excessive diarrhea or anorexia. The material should not inhibit tissue repair since it will be in contact in high concentration with the healing bowel."

That is a big order for one drug. Nevertheless, according to the clinicians quoted above, neomycin has filled all except one of the specifications. Namely, while neomycin does not favor the development of resistant forms, it was found that *occasionally* the growth of a resistant strain of *Aerobacter aerogenes* is not inhibited.

To prevent the growth of this resistant strain, they have employed sulfathalidine, phthalylsulfathiazole, and sulfasuxidine with neomycin. With the neomycin-sulfa combination, it was pointed out that if, on occasion, toxicity results from the sulfa drug, such patients will require neomycin alone. They credit the results of this combined therapy to the action of the neomycin, and estimate that where neomycin is given without the sulfa drug, only 0.1 per cent (1 in 1000) of the patients treated will develop the resistant form of the organism mentioned.[135,150,76]

A separate group of investigators has more recently confirmed the effectiveness of neomycin in preoperative intestinal surgery, and also used a combination of neomycin-phthalylsulfathiazole. This group stated that because the drugs are employed for only 24 hours prior to surgery, there is little opportunity for overgrowth with yeasts, fungi, and other resistant organisms before the time of operation.[130]

In still another study of numerous clinical cases, after neomycin was used in preoperative bowel surgery, it was concluded that the drug was "very effective against nearly all of the fecal flora, and the development of resistant strains is most uncommon."[133]

(To be Concluded)

Correction: Part one of the article, "Aspects of Several Antibiotics," in the December issue, was continued from page 767 to page 853, instead of to page 860.

COMBINATION COSMETICS

(Continued from page 36)

which could not be duplicated by face powder as such.

This therefore became polyfunctional in that it had incorporated in itself both a makeup foundation and a face powder. It was more important as a foundation of several different types of make-up bases. One of the more recent and very popular varieties is an emulsion in which the powders have been incorporated in a state, for all practical purposes, of permanent suspension. It resembles a lotion in that it flows readily and is therefore easily poured from its container and applied. Actually this later development represents the same idea as the cake makeup except that the water was allowed to remain so that no addition of moisture was needed for proper application. This does not mean that a formula suitable as a cake makeup could be automatically turned into a liquid makeup by the addition of a suitable amount of water. Problems in emulsion stability and in pigment suspension must also be considered. The better of these preparations however are extremely stable emulsions and when appropriately packaged represent no problem in aesthetic properties, which must be incorporated into all cosmetic preparations.

Creams and hand lotions have also shown a tendency towards a combination of functions. All creams, since the old melting cleansing cream has disappeared from the market, are emulsions and vary in their formulations in an infinite number of ways. The old standbys, as previously stated, were the night creams, cold creams and vanishing creams. There has been a drift, however, towards their combination as well as to changing them to a liquid form. For a long period it was difficult to incorporate a relatively large percentage of oil into a vanishing cream form or to reduce the amount of oil in the beeswax-borax formulations. This situation was changed slightly by the appearance of the absorption bases which could incorporate considerable concentrations of water in water-in-oil emulsions, but the appearance of increasing amounts of new types of emulsifiers really accelerated this process. Multifunctional creams have now become the usual rather than the rare, and incorporation of raw materials which, though desirable, represented insurmountable technical difficulties are now used without any trouble. Lanolin whose use was at one period limited to water-in-oil emulsions is now readily incorporated into oil-in-water emulsions just as readily.

One of the more apparent results of this type of emphasis has been to use emulsifiers and water where before alcohol was used as the vehicle. This is strikingly represented by the advent of the cream hair lotions. These are liquid emulsions both water-in-oil and oil-in-water, containing relatively large amounts of oil. Emulsions of this type may be made with anywhere from 10 per cent of oil to 75 per cent incorporated. Since water also evaporates, this system is as effective as alcohol in the application of an oil to the hair, in the desired concentration, to hold the hair in place without causing it to feel greasy. Another good example is the advent of the sachet—where an emulsion system in conjunction with water is used as the vehicle for relatively large concentrations of essential oils—rather than alcohol. The sachet, however, is not completely transfer free. Since essential oils vary as much as they do in their chemical and physical properties, it is wise to formulate the vehicle to fit the essential oil compound rather than to assume that the same system would function with any combination of oils. This idea is well to remember for any emulsion if a change in one or another of its constituents is being considered.

One of the newer multifunctional preparations has been the combination of an insect repellent and sunburn preventive. The raw materials used here are easily incorporated into an alcoholic solution and may also be used—if a proper choice is made—in an emulsion. One of the forms which has begun to appear on the market is a stick form much the same as the stick colognes. However, it is possible to eliminate alcohol completely here and to use one of the well-known insect repellents as the major portion of the vehicle, in which may be incorporated the sunburn preventive and other insect repellents, if so desired, stiffened with soap in the usual manner. I am not sure how large a market would be interested in this form of the product, but it is being mentioned as an example of what would be possible in products of this type. Sunburn preventives are also being used in multifunctional products—particularly certain types of body lotions—to enhance the number of different purposes for which it could be used by the consumer. In this manner, what would ordinarily be only a seasonal item could easily be an all-year product.

In any discussion of cosmetic preparations shampoos must also be included. We know that their primary function is to clean the hair, but a definitive description of clean hair is difficult to formulate. Actually we have begun to realize that the woman wants the hair cleaned of superficial soil—but does not want it degreased entirely, since it becomes unmanageable under such conditions. Shampoos have therefore become multifunctional in that they clean to the consumer's satisfaction and leave the hair manageable—to the consumer's satisfaction. In order to accomplish this dual function many shampoos have incorporated in them additives known as conditioners which display a tendency towards substantivity to the hair. Such substantivity causes the hair to behave as if there had been an extremely microscopically thin film added to the hair so that it would have this property even after removal of the superficial soil. The newer shampoos have shown a great consumer acceptance because of this efficacy even in hard-water areas. The introduction of the conditioners has removed the one complaint against them so that they may now be formulated at a pH and with detergent attributes which are best suited for the human hair.

Many of the alcoholic preparations have also become polyfunctional. Perhaps the best example of this is the popular deodorant cologne. This formula is a combination of essential oils and a substantive bactericide either in alcohol—which is most common—or in stick form. Another preparation in much the same category would include a combination of astringent and skin freshener.

The one product which does not seem to change in function or in form is the lipstick—but an increasing number of women seem to prefer the use of the lipstick as a cheek rouge than to purchase a rouge formulated for that function only. This observation is made so that someone may possibly see some merit in a product formulated with this idea in mind—though I would not even know how to begin.

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THE FDA AND NEW DRUG FLAVORS

(Continued from page 35)

At the present time the flavor people do not completely trust the FDA.

Inspecting flavors in new drugs is such a mammoth task in itself that the FDA would like the flavor industry to set up a committee among its own men to aid in this work. It is doubtful that the essential oil firms would agree to such a move at the present time because the compounding of flavors is such a competitive business and depends so heavily on secrecy.

But, if the flavor manufacturers wish to have an important voice in the regulation of flavors, they would be wise to find methods by which they can work in closer cooperation with the FDA. This move would benefit all concerned, including the public.

PILFERAGE PREVENTION

(Continued from page 30)

Now, for a discussion of the types of pilferage: the drug industry is a natural field for petty thievery because of the large variety of small, easily concealed products which are high in price and relatively easy to sell in the large cities through fences and, often directly, to friendly and unscrupulous druggists.

Company employees working at the manufacturer's plant make up the largest group of pilferers. These employee-thieves fall into several categories and include many of your oldest and often most-trusted workers. They are both male and female. They sometimes start by taking a bottle or two containing a drug that some friend has asked them for, and discovering how easy it is, they increase their activities until they are selling to an outlet on a regular schedule. Some employees seek jobs with drug manufacturers for the express purpose of stealing a small amount each day to supplement their income.

May I suggest that the typical company employee, stealing on a regular, day-to-day basis is more than likely an older employee, probably a good worker with five to 20 years' service who has been walking past your guards each day with two to four small bottles or boxes in his pockets. He is going directly home where he collects enough to make up a sizable weekly sale to a friend or druggist directly, or through a friend.

We have seen this in our own experience. An old employee with 20 years' service confessed to having stolen several small bottles of expensive medicine daily and selling it directly to a druggist friend. Another employee of 17 years' service confessed to having taken out enough company products in his pockets daily to enable him to establish a door-to-door business which he carried on at night with our catalogues and price list. He gave a 50 per cent discount and would deliver any item selected. Two of our employees were caught who worked as a team—one specialized in stealing, the other in selling.

There is also the convenience theft by employees who take small, valuable products merely because they can't resist the temptation while handling them on a finishing line or in storage, especially if the product is spilled on the floor in large quantities or allowed to lie in open, unprotected containers in a careless manner.

Next we have the more enterprising thief who works only in case-lot quantities. He usually works with an outside accomplice. He will work out a plan with perhaps your garbage or trash truck operator who is also very often your means of disposing of damaged goods. He may even maneuver cases into his own parked car if the layout of the parking lot permits. Or he will make a hasty transfer into a friend's car, who will drive up to a convenient exit on schedule. This method is often used in New York City where a plant may have many emergency exits to the street.

Truckers who deliver supplies or pick up your shipments often work out deals with men on your loading platform to add stolen cartons of your products to legitimate shipments, for sale to some crooked distributors, wholesalers or druggists. The trucker knows all the dishonest outlets on his route and you can be sure he is constantly trying to set up a deal from both ends—the supply and demand again. This is especially true of the metropolitan trucker who has so many stops and contacts around his area.

But the over-the-road trucker is equally ingenious in his own way. They both have learned how to conceal cases in the cabs, under the hoods, underneath the frame and elsewhere around the front of the truck so they can dispose of them quickly while en-route.

There is one thing of which you may be sure: somebody is stealing your product. If the product is put up in large bottles and is relatively inexpensive, your losses by theft will be small and probably restricted to those taken for the pilferers' own use. However, if your product is small and expensive it is being taken by one, or perhaps all, of the methods just mentioned.

What should the individual company do to reduce these losses? May I make the following suggestions:

Check to see if you can determine your losses. The fact that you can't spot your losses doesn't mean you don't have them. It may be necessary to run inventory checks on a few selected items which are considered most likely to be pilfered.

Give one man responsibility for establishing safeguards against pilferage. He must have the full support and backing of top management, and he must be required to put into effect an active theft-prevention program.

Now before outlining a preventive program, I should like to point out that the best way to start the program, to open Management's eyes, and to convince yourself of the urgency of your program, is to catch a thief or two and prosecute them through the courts, and fire them.

In order to catch the thief, your security man will have to plan very carefully. He should be prepared to

devote considerable time, patience and money to the task of catching the first few thieves.

It is necessary to proceed with the utmost caution and with Police Department cooperation in order to project yourself against charges of false arrest or defamation of character.

It is necessary to work in complete secrecy at first, since this will help catch the more careless ones off guard, and will greatly increase your chance of success.

Your security officer must examine the supervisory staff carefully and choose a few who are honest, trustworthy, level-headed, and interested in stopping thievery. Care should be exercised in this matter because many foremen, especially the older ones, have lived with the knowledge that people here and there have been taking things. Many know who is doing it and have through the years become friendly with the pilferer or have become obligated to him.

Many of the thieves are also bookies or runners for bookies. They may take bets from your foreman who is then reluctant to report him for pilfering. But the trusted, alert foreman who is anxious to help can be your source of direct contact and your watchdog for trapping the thief.

The foreman, however, has to be guided and encouraged if he is to give you continued and effective help. You should never fail to follow up each lead given by your foreman. You should continue to investigate each clue or suggestion, or otherwise the cooperating foremen will lose interest, since his primary duty is some other phase of production, and the pursuit of thieves is to him an extra-curricular activity. Your security officer and foremen working together should be able to develop a list of suspected thieves, and they will be aided in this task by the following practical suggestions.

Bring under close observation all employees who have developed unusual or individual behavior patterns—for instance:

- The employee who lags behind the others at quitting time and is the last to leave the working area.
- The employee who arrives earlier than the others and who has changed into his work clothes before his fellow workers arrive.
- The employee who works alone or eats alone and stands off from the others.
- The employee who wears heavy clothes regardless of the weather.

Your alert foremen may already suspect certain employees and will be able to give your security officer invaluable help.

By close observation and a little common sense you should be able to establish the thief's modus operandi. Once this is established you'll see it repeated time and again with machine-like regularity. His system has been working for years and he wouldn't take a chance on a variance from his established practice.

If you are now able to tell that he is repeating his theft daily, you should then have him kept under surveillance by a professional detective as he leaves your

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premises until you can establish what he does with the stolen goods.

If he goes to his home without disposing of it on the way or revealing it in any manner, you'll have a very difficult job in apprehending him and would perhaps do better to concentrate on your next case in the hope you'll find another, more careless thief, one who will reveal the stolen goods in some way.

For instance, we caught a pilferer who took his lunch to work in a brown paper bag. At 11:30 he surreptitiously ate his lunch, folded the brown paper bag, put it in one pocket and filled his others with bottles of our finished product. He then punched out at 11:55, went to a diner ostensibly for lunch. When he thought the time was right, he would fill his brown paper bag with the bottles of our products and pass it over the counter to the waiter who held it for him until he returned at the end of his work day. He was arrested by a city detective, but only after a private detective had watched him repeat his performance for three days.

Careful observation by an alert foreman working with the security officer and an outside investigator kept this thief under observation from the time he stole the materials until he revealed the stuff at a point outside our premises.

Some concerns employ inside undercover men to locate the thief and establish his method of operation. It is still necessary to follow the thief from inside the plant to a point beyond the property line. Once he reveals possession of your product, you should have no trouble in arresting and prosecuting successfully.

This practice of catching the thief is not the whole answer. I repeat, it is our suggestion that it is the most effective way to launch your theft prevention program. It adds zest and impetus to the real work which lies ahead in a continuing effort to eliminate those things which make it easy to steal.

Now for preventive methods for checking pilferage.

Take active steps to educate the employee as to how much money the company is losing because of thefts.

Emphasize the loss of job and income by those caught stealing. This can be done in your company periodical.

Educate the foremen and other supervisors as to their responsibilities. Weed out the weak supervisor who has fraternized with the workers and become obligated in some manner or other to those under his supervision. Replace him with a honest, vigorous, alert man. Enlist and encourage new foremen in joining the fight against pilferage.

Review your guard service with the view to making the guards more alert. Give them very close scrutiny. You may catch some of them stealing. We did; our very first catch netted two watchmen.

Improve your housekeeping. A clean plant with well-marked aisles and neatly stacked cartons of finishing supplies and finished goods is a deterrent to a thief who is looking for a trash pile or a cluttered area in which to store a cache of goods, which will be taken out piece by piece until a whole case is soon emptied. This system is quite common. The thief will take a whole case of

your product, and hide it in a suitable location usually between the locker room and the exit, where he can put a bottle or two in his pockets on the way out each night until the case is empty.

This should be a warning not to store finished goods, especially bulk tablets or loose goods, between your locker room and the exit. But it is also a warning to keep neat stacks of cases throughout the plant so that any unauthorized storage is easy to spot.

Good housekeeping has an even more important effect of showing the employee that you regard your product as a valuable article and one which the company protects with pride against damage and contamination. Any careless spilling or dumping of loose bottles tends to cheapen the product in the employee's eyes and allows them to rationalize their acts of pilferage. We believe that all production lines having small bottles of finished products should be covered. Even a light, loose cloth covering will reduce the temptation that many basically honest people will have to take a bottle or two.

Remember your biggest loss may well be by the convenience theft made by people who handle thousands of bottles a day—until they lose the feeling of value and think the loss of a bottle or two by the company is so small that they feel no personal guilt in taking one or two. Any single act of pilferage usually appears small and relatively unimportant. But multiply these thefts by a few hundred people each day and you'll be staggered by the enormity of it. Good housekeeping and a show of respect for company products by managers and supervisors will keep your convenience thefts to a minimum.

Establish strict control over packages, luggage and dinner pails being brought into the plant by employees. These are the more obvious protective measures and must be dealt with by methods dictated by local conditions.

Do not allow employees to leave your plant by more than one exit at quitting time. Channel all employees out through a guarded exit if at all possible.

Establish a thorough pre-employment check for possible police records on all new employees. If this tends to slow down the hiring, and the Personnel Department finds this cumbersome, we suggest a 30-day trial employment period, during which the employee is subject to dismissal if found to have falsified his application for work by stating he has never been arrested on an offense greater than a traffic violation.

Run a criminal check on all your present employees. It might prove helpful in spotting a potential thief.

Encourage the prompt reporting of all thefts regardless of how small. Petty thieves who steal money from fellow employees are very often also stealing finished products.

Maintain a central lock and key system. You can get a type of lock now that has a removable core which can be switched from one lock to another in a matter of minutes and thus frustrate any thief having a stolen key to a storage area.

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Keep your bulk storage locked up and safely located away from aisles or outside walls, and remember that this offers a great temptation and a challenge to a clever thief. He will steal barrels of tablets, a handful at a time, gallons of liquids by siphoning it into his thermos jug and then come back and steal the empty bottles, boxes and labels to complete his home production kit.

Thieving women on your production lines with bulging breasts and packed purses are a real problem and one for which there is no ready answer. I might recite one incident at our plant to illustrate and also indicate a method we have used to discourage them. We checked the exact number of empty bottles brought up to a finishing line at the start of a work day. At noon we checked the empties again and the full bottles produced. We were short 185 bottles. In the afternoon, Management's representatives converged on the line, took them all into the lounge where the security officer asked for a show of hands from those ladies who would consent to search. He received unanimous consent: the ladies felt secure—they had all left their purses at the finishing line. But armed with their consent we searched their purses in the presence of union representatives, and found five of them loaded with 17 to 22 bottles each.

Your pilferer will likely be an employee who needs extra cash because he either gambles, drinks, plays the horses, indulges in extra-marital activities or lives in excess of his income.

Do not overlook your supervisory staff as far as pilferage is concerned. You may find a supervisor-employee combination which works as a team. This arrangement can be very effective and quite costly to the company.

So much for what the individual company can do to reduce and prevent pilferage. What can the drug and cosmetic industry as a whole do?

The industry as a whole is not only suffering losses through pilferage by plant employees but through thefts on the highways, at trucking terminals, at warehouses, and by the device of excessive shortage claims by druggists and distributors. Losses of this magnitude and scope call for action by the industry itself. With this in mind, and taking a tip from the old and established group known as the Stores' Mutual Protective Association, a group of pharmaceutical and cosmetic manufacturers joined together recently and formed a non-profit organization known as the Drug and Cosmetic Security Association, Inc. This association is still in its infancy. Up to this time its activities have been limited to the discussion stage.

It is the purpose of the organization to promote the exchange of information and ideas concerning the best methods for combating and reducing losses suffered in the following areas of the drug and cosmetic industry:

1) By pilferage among employees.

2) By theft and dishonest methods practiced by truck drivers, carriers and others.

3) By excessive or false claims of shortages by customers.

The Association is non-profit, supported entirely by membership dues, and will function from a central office established for the purpose of pooling information for the exclusive use of its members.

A considerable amount of enthusiasm has been shown for this idea. Many feel that our most effective means of combating this growing menace is by combining our efforts under a mutual protection plan.

In closing, I would like to suggest that as you watch your competitors and try to beat them in the race to market new and better drugs, don't forget that you have still another unseen competitor: a $7.5 million concern, which we shall call "Pilferage, Incorporated," which sells your own products to the same buying public that your research and advertising has helped create.

COSMETIC INDUSTRY PERSONNEL PROBLEMS

(Continued from page 43)

firm, such as research directors, cosmetic chemists and production managers. "Non-technical personnel" was defined as those employees concerned with activities other than scientific, such as administration, sales, promotion, advertising, publicity and other non-scientific management positions. Replies were received from presidents of 12 firms, and research directors of 11 firms or their equivalents, with no firm being contacted twice. Three were addressed to technically trained persons who are not associated with any specific firm, but are in the unique position of being able to express representative technical thinking. The aim was to obtain opinions representative of technical and non-technical

TABLE, I

A Breakdown of Employees in 23 Cosmetic Firms

NO. OF FIRM	TOTAL NO. OF EMPLOYEES	TECHNICAL EMPLOYEES	PHARMACISTS
1	130	4	1
2	800	12	0
3	340	12	2
4	250	7	0
5	200-300	4	0
6	900	300	0
7	Approx. 1800	36	2
8		2	0
9	3400	15	1
10	Approx. 2000	Approx. 50	0
11	200	4	0
12	100	4	0
13	175-200	5	4
14	Approx. 500	Approx. 100	1
15	262	175	2
16	482	23	9
17	400	6	0
18	1200	15	0
19	475	125	1
20	Approx. 550	16	0
21	" 700	30	3
22	" 100	4	1
23	" 60	4	0
		953	27

thinking at the executive level and to obtain personnel data from as many firms as possible. Fifty-nine per cent or 26 industry members representing 23 firms replied.

Table I represents a breakdown of employees in 23 cosmetic firms with figures on the total number of employees, total number of technical employees and total number of pharmacists. The variation in the number of technical employees among firms may give rise to questions. One explanation is that some firms make use of private-label laboratories to a much greater degree than others. The 23 firms reporting employ a total of approximately 953 technical personnel, of whom 27 are pharmacists. By comparison, a survey was made in 1952 of 158 firms in the ethical and proprietary pharmaceutical field, and manufacturers of chemicals and other products used in pharmaceuticals, to determine the number of pharmacy graduates in non-sales positions. Results reveal a total of 1,099 pharmacy graduates employed by these 158 firms. No figure was given on the total number of technically trained persons employed.*

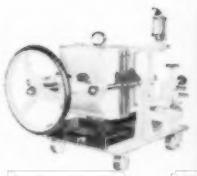
TABLE II
Types of Technical Positions Held by Pharmacists in 23 Cosmetic Firms

Research and development	6
Manufacture, production and control	12
Chemist (Unclassified)	9
Total	27

It was not possible to obtain the number of pharmacists employed in sales in the cosmetic industry, but indications are that they are used to the greatest extent in firms manufacturing "hypo-allergenic" items and other preparations where detailing the doctor and the retail pharmacist are important phases of the sales program. In the survey of the pharmaceutical industry referred to previously, pharmacists employed by the drug industry were reported as divided into technical positions classed as production, purchasing, research and development and control. In the survey of the cosmetic industry, pharmacists were categorized as in Table II by those firms employing them.

Since pharmacists make up a small percentage of even technical personnel, it is of interest to note what general academic requirements are common among cosmetic firms. Table III shows a tabulation of answers to the question of whether there are definite educational requirements for technical and non-technical positions among cosmetic firms and if so, what they are. Where a *yes* or *no* appears without qualification, this represents the answer as forwarded by the firm. Two trends are obvious. One, the educational requirements for technical positions are, with few exceptions, the minimum of a college degree, while the requirements for non-technical positions are much less specific. This is significant since in the area of non-technical personnel lies the policy-making power. The philosophy that persons in technical positions should be removed from policy-making responsibilities commonly prevails, al-

*Schneller, G. H. (Personal communication with the author)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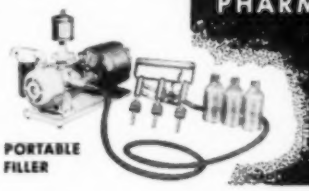
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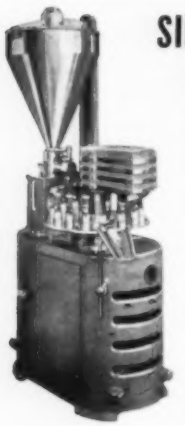

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TABLE III

Specific Educational Requirements for Employment in Non-Technical and Technical Positions in 23 Firms

EMPLOYEES IN FIRM	TECHNICAL PERSONNEL	NON-TECHNICAL PERSONNEL	ON-THE-JOB TRAINING PROGRAM
130	Chemical college education and practical experience in cosmetic manufacturing	General education and specific training and experience in field of activity	Yes
800	Yes	Equivalent of college education	No
340	(a) Generally B.S. or equivalent in chemistry or pharmacy (b) Research chemists M.S., or equivalent in chemistry or pharmacy	Completely dependent job	No
250	B.S. in chemistry or chemical engineering	Vary by position from high school graduate to Ph.D.	
200-300	B.S. or better	None	No
900	At least college degree then up to Ph.D. depending on job	Yes, depends on job	No
Approx. 1800	College education with or without industrial experience depends on job	None	No
Approx. 100	Degree chemistry or pharmacy, depends on responsibility and work	Degree chemistry or pharmacy or scientific training adequate for particular job	No
3400	None	None	No
Approx. 2000	Degree in chemistry and experience in field	Yes—vary with position	Yes
200	Yes—college degree eng. or chem.	None	Yes
100	Chief—degree (grad.) in chemistry Ass't—college equiv.	College equivalent	No
175-200	College B.S. or equivalent	None — except in higher categories	No
500+	Yes—college degree	Yes—at least high school but in some positions college	Yes
262	Yes — graduates of A.C.S. accredited schools	Yes — depends on position	Yes
482	Yes—college graduates, major subject depends on job	Yes—college graduates, major subject depends on job	Yes
400	Yes—training and experience in chemistry	None	No
1200	Yes — graduates of recognized engineering schools or colleges	Yes and no—depends on position and qualification	No
475	A.B. or B.S. with major in science	At least adequate background and experience as required for job	Yes
550	B.S. in chemistry. Ph. or related sciences	Yes — minimum high school	No
700	B.S. or equivalent	None	Yes
100	No—in general competent chemists. Knowledge of biochemistry and physiology helps	None	No
60	Yes. Degree or practical experience	None	No

though a few large firms presently have included a representative from the technical activities among their administrative officers.

The remainder of the questionnaire was devoted to obtaining opinions on general industry practices and attitudes in regard to personnel. In view of the apparent limited role of the pharmacy college graduate, an effort was made to identify the type of scientific background sought by the industry for its technical personnel. Four presidents and four research directors stated that pharmacists are actively sought by the industry while the total number of respondents—12 presidents and 14 research directors—state that chemistry majors are actively sought for industry technical personnel. The reason, when specified was invariably that chemistry majors are more in demand because pharmacy college graduates do not have sufficient chemistry courses in their college curriculum. Actually, if one uses a quantitative measure, the chemistry major with a four-year degree is required to have an average of 30 hours of chemistry, while the graduates of the 70 accredited colleges of pharmacy are required to have an average of 34 hours of chemistry. Every college and school of pharmacy includes courses in general chemistry, organic chemistry, and analytical (qualitative and quantitative) chemistry. These are frequently taught in the chemistry department of the University. The other chemistry courses most often included in the pharmacy curriculum are drug assay, pharmaceutical chemistry, and biochemistry. These are often taught in either the pharmacy or medical division of the University. And, according to a survey in 1951,* forty per cent of the of the pharmacy colleges schedule a specific course in cosmetics with the majority of hours devoted to the chemical formulation of cosmetics. All but 14 per cent of the accredited schools and colleges include some educational material on cosmetics either in the laboratory or in lectures of other courses.

Although chemistry majors play an important role in technical positions, their limited role in non-technical positions reflects the general attitude of industry toward scientific backgrounds for these positions. All 12 president-respondents and nine research directors state that chemists are not sought for non-technical positions.

Even though an extensive scientific background is not actively sought, the question was raised as to whether scientific areas of training might have application in the every-day responsibilities of non-technical executives. Product quality, all would agree, is essential. It would seem that top policy-making executives who are invariably in non-technical positions must exercise judgment in rejecting or accepting advice on laboratory and clinical findings of both a chemical and medical nature as they pertain to the firm's product. Only three presidents answered that non-technical employees must make decisions on such data while all technical respondents—research directors—answered

*Conley, Veronica L.: *The Cosmetics Industry's Stake in Pharmaceutical Education*, Proc. Toilet Goods Association, p. 2, December, 1951.

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that non-technical employees must make decisions on chemical or medical data.

Furthermore, in view of the nature of cosmetics and the almost exclusive role of non-technical personnel in the managerial aspects of the industry's business, a question was asked on the place of formal courses in the biological and physical sciences in the educational background of non-technical personnel. Five presidents and nine research directors state that basic college courses in the physical sciences are essential for non-technical personnel, while three presidents and nine research directors felt that background courses in the biological sciences are essential.

In view of the similarities between drugs and cosmetics, a question was asked whether comparable positions in the cosmetic industry and pharmaceutical field would demand similar backgrounds. Nine presidents and 12 research directors answered in the affirmative. At the same time, eight presidents and eight research directors agreed that a study of cosmetic industry personnel needs with a view to determining what education best equips for future leadership in both technical and non-technical positions is warranted.

Summary

The purpose of this study is to explore possible starting points from which a more extensive and all-inclusive investigation of industry personnel needs and policies may proceed. Employees were divided into two large categories—technical and non-technical. Replies to the questionnaires were received from 26 technical and non-technical executive personnel representing 23 cosmetic firms. The questions were formulated on the basis of three assumptions arising from the point of view of the investigator. The objectives of the questions were to provide two types of data—facts on existing personnel policies and opinions on matters pertinent to further studies in this area.

NEW PRODUCT DEVELOPMENT

(Continued from page 39)

In other cases, Accounting gets into the picture during the research stage. But in most cases, particularly when the dosage amount is not known, there is not enough information available until the clinical evaluation stage.

At any rate, the economics are carefully surveyed and, depending on the stage at which they are determined, all further work is greatly influenced by the findings of the Accounting Department. If in the Research stage, for example, the economics indicate that profitability is doubtful, all research work is suspended until further economic studies can be made.

At this point, however, careful judgment must be exercised when weighing the information available against estimated costs, because one of two undesirable things may result:

First, very good products can be abandoned because of a hopeless cost picture that may be based on false assumptions;

Second, too much research money can be spent on projects that may be completely hopeless from the economic standpoint.

When the product reaches the development stage and market introduction seems probable, the New Product Coordination group becomes the clearing house at that point for all information. There are a myriad of problems to consider and an equal number of check points to be watched in order that the market introduction of a product can be carried out on a particular date, at a fixed price, and with a specific profit potential.

The Pilot Plant at this point is producing the product and feels that it can be made on a commercial scale. The Cost Accounting Department has indicated, at least in a rough way, that the economics are favorable.

The New Product Coordination group will then place the product in its follow-up system. A list of check points is tabulated, and in some cases these might number in excess of 100 items. Time table estimates are gathered from Research, Development, Legal, Accounting, Purchasing, and other departments in the company. They involve matters that must be cleared by a set date in order to meet an established market-launching schedule.

Typical check points would include such things as the preparation of material for clinical evaluation for clearance by the FDA; the clearance of taste in oral products by the Sales Department concerned; the clearance of chronic and acute toxicity tests by our Pharmacology Department; the clearance of the availability of raw materials which is coordinated with our Purchasing Department; clearance with the Legal Department—our Patent Department—possibly on the patentability, or validity, of a patent which we may have already secured.

In addition, the New Product Coordination group must list the requirements of the FDA on the new drug application. The New Product Coordination group lists the requirements on the drug in question and then checks with Research, Pharmacology, Quality Control, Analytical, Production, Development and all other departments involved to determine that all of the necessary tests are in progress and that on a specific date they can take all of this information to Washington for clearance of our new drug application on that product.

At the same time, the New Product Coordination group will be checking with the Sales Department regarding plans for introduction of the new product. We often have several products coming up for introduction by the same Sales Division at the same time. Obviously, they cannot adequately introduce two or three products during the same month. The salesman must have time to talk about a product, and his efforts would be diluted if he had more than one new product to discuss on the same call. Thus, in addition to coordinating the activities of all areas of our company in new product development there is the necessity for

coordinating them in such a manner as to tie in with the activities of the Sales Division concerned.

The New Product Coordination group also works with the Advertising Department and keeps them informed as to the date on which a particular product will be launched. This liaison allows Advertising to coordinate with the market availability of the product, and gives our salesmen important advertising support in trade publications at the same time they are talking to customers.

As a final check point, and for a final decision by Management on marketing plans, the New Product Coordination group compiles, in book form, a concise summary of the product which embodies:

First, a description of the product, its purpose, and its properties presented in a form that will readily acquaint anyone with it who is not close to the subject.

Second, technical and medical background, indicating that the product is sound in this respect.

Third, recommendations of the Sales Division management concerned on marketing plans, and their reasons for making these recommendations.

I think it is clear from what I have said so far that the New Product Coordination group cuts across all company lines and coordinates activities where new product development is concerned. At Pfizer, we have five sales divisions; Pfizer Laboratories; the J. B. Roerig Division; Chemical Sales Division; Agricultural Sales Division; and the Foreign Division. The last-named division combines within itself all activities of the other four divisions, which operate domestically. The New Product Coordination group consists of several highly trained men. They are recruited from our Production, Sales, and Research Divisions. We feel that with this diversified experience almost any problem that might arise can be interpreted and followed up by someone in the group.

periodic report is issued by the New Product Coordination group, which usually consists of four or five sentences on each product. This report indicates the work done during the previous period, outlines exactly the current state of development, and usually indicates when the next stage of work will be completed. The report is circulated to top management which takes a keen interest in the progress of these products. Our management also follows product development on a regular basis by personally contacting the New Product Coordination group.

All the divisions of our company have come to realize that in order to get complete, comprehensive information on a specific new product they should contact this group. They have found by experience that in this way they can get a capsulated review of the product in which they are interested. The Legal Department, for instance, will often call on them to get a Medical view of the product or will call on them to get a Research view of a product when a patent problem arises.

We at Pfizer have found that close attention to coordination has aided us greatly in achieving rapid introduction of new products, which all of us realize is so important in the highly competitive pharmaceutical

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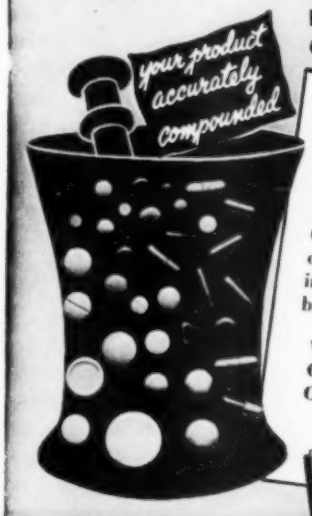

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field. We have also found that coordination is equally important for introduction of new products in the chemical and agricultural fields. In all cases, the importance lies in checking all possible problems and other points, as we go along, so that it is not necessary to go back and check matters that actually should have been checked months ago.

In conclusion, may I emphasize the importance that we at Pfizer attach to this coordination activity which helps to eliminate duplication of effort and loss of time in the introduction of new products.

I should also like to emphasize the importance such a group must attach to cooperation and human relations. The New Product Coordination group is not necessarily a creative group. They do not necessarily come up with new ideas for products. They carry out no research work. They do no development work. They do no production work. Their job is purely a matter of coordination, and, as I am sure all of you know, this kind of work requires tact, diplomacy, and extreme care in getting along with people in order to get the work done. In this connection, we have found it vital to select carefully the people who work in New Product Coordination. I believe we have been fortunate in this respect, because the group has certainly operated effectively.

FACE POWDERS

(Continued from page 41)

It has been found that upon exceptionally dry skins powder will accumulate on and around chapped, flaked or dry skin, and so accentuate rather than hide this condition. Oily skin will usually produce a progressive darkening of the shade that is used. Since it is possible for one person to have an oily skin in places and a dry skin in others, an application of face powder will result in an over-all splotchy appearance. In addition, the skin of the normal human being does not remain constant; on the contrary, it will change its quality and appearance from season to season, sometimes week to week, or even day to day. This brings us to the assumption that a powder possessing low adhesion properties which will disappear completely from the face after approximately two hours from the time of application would be much less likely to lead to undesirable effects in the appearance of the skin.

Covering power of a face powder is its ability to produce a uniform coat of sufficient thickness to hide minor skin blemishes and imperfections. Here also, covering power has come to mean less that it has in the past due to the advent of powder bases which are able to change the effect of application of face powders by forming an undercoat, thus changing the complete character of the face. There is no direct relationship between the hiding power of a face powder and the various types of finishes that it might render to the skin.

Actually slip is merely the property of being easy to apply. This is a necessity, as the consumer expects and is entitled to a face powder that will spread easily and smoothly and, most important, uniformly over the face. From the technical point of view, slip is governed by the main diluent in the face powder, usually either talc or kaolin, or both.

Slip is a property of talc and to a much lesser extent, kaolin, and it cannot as yet actually be defined in any type of quantitative method; it is felt between the fingers as a lubricant, an unctuousness. Since it comprises approximately 60-95 per cent of the final face powder, its qualities to a great extent determine those of the finished product. It is quite important to remember that once a particular grade of any of the raw materials has been adopted it must under all conditions be continued. The raw materials need not be perfectly white as the finished product is never white. However, it is much easier to cross match two shades when both have been made from a perfectly white base.

Adhesion is generally attributed to the stearates, zinc and magnesium, zinc being by far the most common. Oil is quite often included in face powders to improve adhesion, and although it may have some value in this direction, it is quite probable it possesses greater value as a counteractant against the drying effects of many of the absorbant ingredients of the face powder.

Color is a most important face powder quality. First and foremost, the color should be uniform from one batch to another. This is very difficult to achieve. It takes meticulous care in both formulation and manufacture to produce exactly the same shade with two subsequent batches. The best method for color matching is as follows: After the powder has been milled once, a sample is taken and placed upon a sheet of paper in a small mound. Immediately next to it a similar mound of the control color is placed. The two are pressed with a clean piece of paper so that they form a cake. If any color difference exists, a distinct line will be noticeable separating the two powders. If the two do not match, the difficulty is about to begin, for only through trial and error can the pigments be added and the right color result. One serious difficulty is the fact that each time the powder is ground, the titanium dioxide or the zinc oxide is broken down into finer particles and redistributed, giving an over-all lightening effect to the face powder, so that it may take four or five additions of pigments before the previous color is matched.

For the most part, the original shade of a face powder is not the color in the box. This is only the beginning of the color requirements. The major importance, of course, is the color and appearance of the powder upon the face; for instance, after perspiration has permeated through the film, some powders turn darker, some lighter, some yellow, some red. This is a serious problem, since the original shade has been replaced by something quite different, but it has been found that deepening of the color is the greatest where the skin oil secretions are the heaviest. The final effect, then, is a very undesirable splotchy appearance.

The covering power of a face powder is, as was stated before, traceable to the zinc oxide and/or titanium dioxide content. Titanium dioxide is being used to a very great extent in modern face powder formulations, as it has approximately five times the covering power as the zinc oxide, so that a mixture of the two oxides will give a very excellent covering ability to practically any face powder formulation.

A face powder plant up until a few years ago was a dirty, dusty, place and quite possibly there are still quite a number which conform to this description. However, it need not be so. Materials can be stored and transported in dust-proof cartons and containers; exhaust equipment may be installed either in the form of hoods or simple exhaust fans to carry off any dust which may be thrown into the air during powder manufacture. Wherever an operation of this sort exists, if it is not possible to equip the plant with adequate equipment for the removal of dust particles from the air, all personnel coming into contact with such environment should for their own health be required to wear dust masks.

Before entering the formulation of face powders, it is well to review somewhat the various types of skin which may encounter the use of face powder. These, for the sake of convenience are classed as normal, dry, oily, and very oily. Due to the fact that dry skins excrete less oil and little moisture, it requires a powder with light covering properties. Normal and oily skins are more shiny due to the secretion of oil and moisture, and hence require a powder with somewhat more covering power. Very oily skins, of course, have a high shine, and of necessity require powder possessing a heavy covering power.

There are several special conditions which may modify the general rules with respect to the type of powder suitable to various types of skin. There are many women whose skins are generally dry, yet suffer from perhaps oiliness of the nose and forehead, or of the chin, and thus require the use of different powders with different covering powers.

The differences in covering power give rise to the classification of light, medium, and heavy, which actually have nothing to do with the bulk of the powder, but simply refer to the amount of powder needed to cover a certain area of the skin. As these terms are very common, their use has been adopted throughout this chapter. Light powder designates that type with slight covering power, intended for use on dry skins; medium is for powder of a somewhat higher covering power, and intended for use on normal or oily skins; heavy designates those powders possessing a great covering power, intended for use on very oily skins.

It is, of course, optional with the manufacturer with respect to the number of shades he wishes to manufacture. It is, however, suggested that a minimum of four and a maximum of eight shades be made. These should run from a very light tan with a yellow cast through beige with a red cast. Before manufacturing face powder, it might be well to procure several samples

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of competitive brands to get a generalized idea of the various colors which women find desirable.

NO. 1
Face Powder (Light Coverage)

Zinc Oxide	20.0 per cent
Zinc Stearate	8.0 per cent
Talc	35.5 per cent
Kaolin	6.0 per cent
Magnesium Carbonate	30.0 per cent
Perfume	0.5 per cent

The above formula represents a typical white base with light covering power. The manufacturing procedure is as follows:

Weigh the magnesium carbonate into a repellent container and pour the perfume very slowly into it. Mix well and allow it to soak overnight. After soaking for a sufficient length of time, the magnesium carbonate is forced through a wide-meshed screen, after which it is placed in a ribbon or other adequate mixer with the balance of the powders and mixed for about 45 minutes. The base can then be taken from the mixer and stored for use in small batches of powder; or the pigments can be added directly to them, the mixing continued for about 30 to 45 minutes; and the powder comminuted through a fine mesh screen. This is optional with the manufacturer.

For simplicity in manufacture it is recommended that a moderate supply of white base be kept on hand and the pigments added as the various shades are needed. The powder formulations contained in this chapter have been arranged in two separate sections. First, the white base is considered, light, medium, and heavy coverage, respectively; and secondly, the various color combinations are considered, making possible a wide variety of face powder formulations.

NO. 2
Face Powder (Light)

Zinx Oxide	.6.0 per cent
Zinc Stearate	4.0 per cent
Calcium Carbonate	6.0 per cent
Magnesium Carbonate	18.0 per cent
Talc	35.5 per cent
Kaolin	20.0 per cent
Perfume	0.5 per cent

The procedure indicated for formula No. 1 above can be used in the manufacture of this and all other subsequent formulations.

NO. 3
Face Powder (Light)

Zinc Oxide	20.0 per cent
Zinc Stearate	6.0 per cent
Talc	60.0 per cent
Perfume	0.5 per cent
Magnesium Carbonate	3.5 per cent
Kaolin	10.0 per cent

NO. 4
Face Powder (Light)

Zinc Oxide	18.0 per cent
Talc	71.5 per cent
Magnesium Stearate	5.0 per cent
Magnesium Carbonate	4.0 per cent
Perfume	1.5 per cent

NO. 5
Face Powder (Medium)

Zinc Oxide	20.0 per cent
Zinc Stearate	8.0 per cent
Talc	20.0 per cent
Kaolin	8.0 per cent
Magnesium Carbonate	43.5 per cent
Perfume	0.5 per cent

NO. 6
Face Powder (Medium)

Zinc Oxide	28.0 per cent
Talc	53.0 per cent
Zinc Stearate	6.5 per cent
Magnesium Carbonate	4.0 per cent
Kaolin	8.0 per cent
Perfume	1.0 per cent

NO. 7
Face Powder (Medium)

Talc	60.0 per cent
Zinc Oxide	3.0 per cent
Titanium Dioxide	4.0 per cent
Magnesium Stearate	4.0 per cent
Magnesium Carbonate	8.0 per cent
Kaolin	19.5 per cent
Perfume	1.5 per cent

NO. 8
Face Powder (Medium)

Talc	73.5 per cent
Zinc Stearate	6.0 per cent
Titanium Dioxide	4.0 per cent
Calcium Carbonate	8.0 per cent
Kaolin	7.0 per cent
Perfume	1.5 per cent

NO. 9
Face Powder (Heavy)

Titanium Dioxide	9.0 per cent
Zinc Stearate	6.0 per cent
Talc	64.5 per cent
Kaolin	9.0 per cent
Magnesium Carbonate	10.0 per cent
Perfume	1.5 per cent

NO. 10
Face Powder (Heavy)

Zinc Oxide	20.0 per cent
Titanium Dioxide	4.0 per cent
Talc	65.0 per cent
Magnesium Stearate	6.0 per cent
Magnesium Carbonate	3.5 per cent
Perfume	1.5 per cent

NO. 11
Face Powder (Heavy)

Titanium Dioxide	6.0 per cent
Zinc Oxide	20.0 per cent
Talc	60.0 per cent
Kaolin	3.0 per cent
Zinc Stearate	4.0 per cent
Magnesium Carbonate	6.0 per cent
Perfume	1.0 per cent

NO. 12
Face Powder (Heavy)

Titanium Dioxide	10.0 per cent
Talc	60.0 per cent
Kaolin	10.0 per cent
Magnesium Stearate	4.0 per cent
Magnesium Carbonate	15.0 per cent
Perfume	1.0 per cent

The following additional formulae have been tabulated to give greater latitude to the formulation of a white base.

LIGHT

Material	No. 13	No. 14	No. 15	No. 16	No. 17
Zinc Oxide	6.0 per cent	3.0 per cent	———	4.0 per cent	4.0 per cent
Titanium Dioxide	———	1.0 per cent	2.0 per cent	———	———
Zinc Stearate	16.0 per cent	———	———	18.0 per cent	12.0 per cent
Magnesium Stearate	4.0 per cent	6.0 per cent	10.0 per cent	———	4.0 per cent
Kaolin	———	12.0 per cent	12.0 per cent	———	20.0 per cent
Talc	54.5 per cent	70.5 per cent	50.0 per cent	40.5 per cent	43.0 per cent
Magnesium Carbonate	18.0 per cent	4.0 per cent	20.0 per cent	35.0 per cent	———
Calcium Carbonate	———	2.0 per cent	4.5 per cent	———	16.0 per cent
Perfume	1.5 per cent	1.5 per cent	1.5 per cent	1.5 per cent	1.0 per cent

MEDIUM

Material	No. 18	No. 19	No. 20	No. 21	No. 22
Zinc Oxide	14.0 per cent	———	———	10.0 per cent	12.0 per cent
Titanium Dioxide	———	8.0 per cent	7.5 per cent	2.0 per cent	1.0 per cent
Zinc Stearate	6.0 per cent	4.0 per cent	———	2.0 per cent	———
Magnesium Stearate	———	———	4.0 per cent	3.0 per cent	5.0 per cent
Kaolin	9.0 per cent	9.0 per cent	11.0 per cent	6.0 per cent	10.0 per cent
Talc	52.0 per cent	66.0 per cent	61.5 per cent	62.0 per cent	68.5 per cent
Magnesium Carbonate	18.0 per cent	12.0 per cent	9.0 per cent	14.0 per cent	20.0 per cent
Calcium Carbonate	———	———	6.0 per cent	———	———
Perfume	1.0 per cent	1.0 per cent	1.0 per cent	1.0 per cent	1.5 per cent

HEAVY

Material	No. 23	No. 24	No. 25	No. 26	No. 27
Zinc Oxide	20.0 per cent	18.0 per cent	———	———	28.0 per cent
Titanium Dioxide	4.0 per cent	6.0 per cent	12.0 per cent	10.0 per cent	———
Zinc Stearate	———	3.0 per cent	6.0 per cent	4.0 per cent	6.0 per cent
Magnesium Stearate	4.0 per cent	2.0 per cent	———	2.0 per cent	———
Kaolin	———	10.0 per cent	12.0 per cent	———	10.0 per cent
Talc	24.0 per cent	30.0 per cent	26.0 per cent	44.0 per cent	34.5 per cent
Magnesium Carbonate	47.0 per cent	30.5 per cent	29.0 per cent	39.5 per cent	21.0 per cent
Calcium Carbonate	———	———	14.0 per cent	———	———
Perfume	1.0 per cent	0.5 per cent	1.0 per cent	0.5 per cent	0.5 per cent

The preparation of the color, in itself, does not pose too many problems; however, it is quite difficult to exactly match one powder with another. For this reason sufficient color should be made up at one time for several large batches.

The basic color in face powder is rendered by the earth colors, ochre, umber, sienna, and cosmetic brown. Various tones are effected by the addition of one or more of the following certified colors:

Reds:	D and C Red No. 2	Barium Lake
	D and C Red No. 7	Calcium Lake
	D and C Red No. 8	Sodium Lake
	D and C Red No. 9	Barium Lake
Ext.	D and C Red No. 9	Calcium Lake
	D and C Red No. 10	Sodium Lake
	D and C Red No. 11	Calcium Lake
Ext.	D and C Red No. 12	Barium Lake
	D and C Red No. 19	Aluminum Lake
	D and C Red No. 13	Strontium Lake
	D and C Red No. 19	Aluminum Lake
	D and C Red No. 21	Aluminum Lake
	D and C Red No. 31	Calcium Lake
	D and C Red No. 35	
	D and C Red No. 36	
Yellows:	D and C Yellow No. 3	Aluminum Lake
Ext.	D and C Yellow No. 5	
	D and C Yellow No. 5	Barium Lake
Oranges:	D and C Orange No. 3	Barium Lake
	D and C Oraage No. 4	Aluminum Lake
	D and C Orange No. 4	Barium Lake
	D and C Orange No. 15	Calcium Lake

It is required by law that all colors, with the exception of the earth colors, be certified for use in face powders. The foregoing list is incomplete, but will adequately serve the formulator in developing a great majority of the more popular shades.

Since the lake colors are very powerful coloring materials, it is sometimes advisable to dilute them with an absorbent, inert powder, such as kaolin. They are generally so strong in coloring properties that a very small amount in excess of that which is required will quite often produce the wrong shade. Many lakes can now be obtained commercially in 1:5 or1:10 dilutions; however, their use in face powders is completely optional with the manufacturer.

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THE SUNTAN INDUSTRY

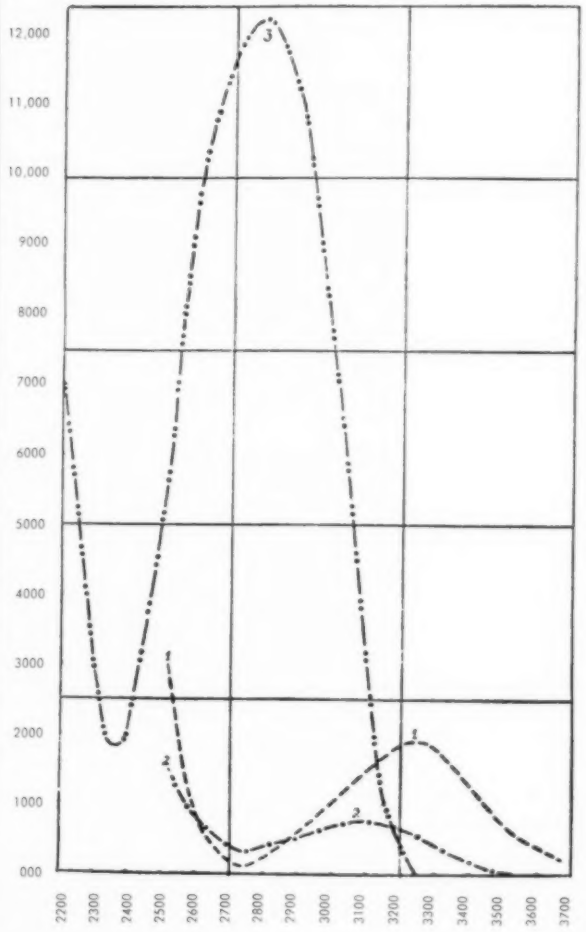
(*Continued from page 45*)

in its scope. The enormous advantage offered by this chemical family is that their maximum absorption coincides almost exactly with the spectral range of maximum burning potency. Energy above 3200 Angstroms is transmitted practically unimpeded conforming to the ideal specifications previously set forth. In the author's quest for the ultimate in sunscreens, testing innumerable chemicals over many years, the search returned time and time again to esters of PABA. It became increasingly evident that herein was that molecular configuration with distinct superiority in actinolytic activity. The situation is not static and the above may be rendered past tense tomorrow. However for today, it is a demonstrable fact.

Isomerism plays a vital role in determining the spectral reactivity of various chemicals. The critical correlation between ultra-violet absorption and the relative positions of the amino and carboxylic groups on the benzene ring is graphically illustrated in Fig. 1.

Fig. 1

ULTRAVIOLET ABSORPTION SPECTRA OF AMINOBENZOIC ACIDS; 1, ORTHO; 2, META; 3, PARA



The variation in efficiency between the ortho, meta and para esters of PABA is tremendous. Erythemal examinations are in exact agreement with this data. That molecular configuration exerts an absolute role in governing spectral sensitivity needs no further comment. This phenomenon may be accepted as a constant on an equal plane with melting points or boiling points. Therefore any change in molecular composition or isomeric relationship will inexorably be manifest by an altered reactivity towards ultra-violet energy. Para-amino-benzoic acid and to a greater degree, certain esters of same, are characterized by an extremely high absorption in the erythemogenic range. As would be expected, any change in the molecule, especially in the amino group, will affect its absorption curve. This is borne out erythemally and spectrographically. The substitution of a hydrogen atom in the amino group of PABA, by an acetyl group, forming acetyl para-amino-benzoic acid, produces a radical shift in spectral sensitivity as noted in Fig. 2.

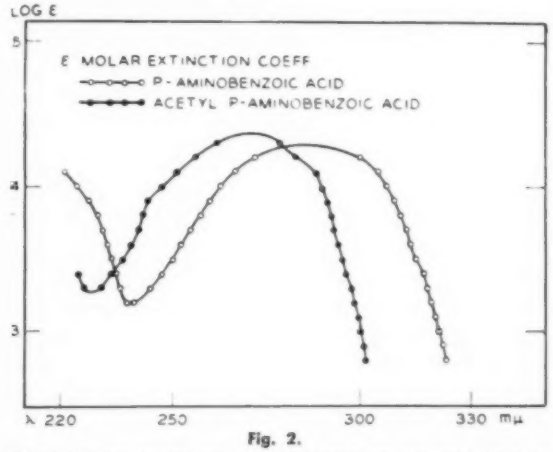


Fig. 2.
Molar Extinction Coefficiencis of p-Aminobenzoic Acid and Acetyl-p-Aminobenzoic Acid

It is quite clear from the above spectrogram[29] that PABA shows a strong and broad absorption curve in the erythemogenic zone, whereas acetyl para-aminobenzoic acid is practically impotent in this range. The writer has been convinced that any sort of substitution in the amino group of various esters of PABA substantially reduces protective efficiency against irritative radiation.

Individual Appraisals

To evaluate every individual compound suggested for use in sunburn preventives, both spectroscopically and erythemally, would be a heroic and expensive undertaking. Until proven contrary, structural relationship to the PABA molecule could serve as a guide in the probing for new screens. The over-all picture may be focused into several tangible facts; that derivatives of PABA offer the most specific and intense absorption in the desired range and at the lowest concentrations; that substitutions in the amino group of this molecule will impair its unparalleled capacity. The

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more common esters of PABA are the ethyl, propyl, iso-butyl, butyl, glyceryl and other high alcohol unions. Their absorption indices are more or less identical. These compounds will serve satisfactorily in the average commercial suntan product in a two per cent concentration. While the PABA compounds seem to meet all requirements for a sunscreen, they do exhibit a virtue which is dual edged and does slightly mar their otherwise nearly perfect behavior. The alkyl esters of PABA are all topical anesthetics, especially on mucus tissue. There is no effect on normal unbroken epithelium. When the skin is injured or hyperemic as after a sunburn, anesthesia is induced. This is certainly beneficial when a suntan lotion is applied on sunburned areas, as it frequently is. However, when brought into contact with the lips, accidently or otherwise, a strong numbing effect is noticed, which when unexpected is quite disconcerting. This side reaction, (actually it is incorrect to call anesthesia a side reaction since alkyl esters of PABA were used as topical anesthetics years before sunscreens were even conceived), is so mild and harmless that no fear should be felt for consumer repercussions. A few relevant words on the label would dispel the element of surprise which neutralizes this minor problem. Attention could also be directed to the fact that the product is soothing when applied to already over-irradiated skin. The anesthetic qualities vary with different esters and those with least potency should be preferred.

Which Screens are employed commercially

Out of 27 actively promoted suntan products, 19 employ derivatives of amino benzoic acid or salicylic acid; four do not reveal active agent; one contains digalloyl trioleate; two, ethylhexanediol. Digalloyl trioleate is nothing more or less than the tri-oleic acid ester of tannic acid whose feeble reputation is well known. Ethylhexanediol is strictly speaking not a sunscreen but an insect repellant. Inasmuch as it is present in such high concentration, 30 per cent, it does afford some spectral protection. Of the balance of the compounds which have found their way into the suntan press under the identification of sunscreens, none are utilized in such capacity. Such wholesale indifference is unquestionably evidential of defective characteristics which precludes any usefulness to the suntan industry.

Sunscreen Economics

Practically all the compounds which have found their way into the suntan literature as potential sunscreens are not prohibitively expensive. Nevertheless comparative costs are worthy of some discussion. A screen with a high price tag per pound may actually be considerably cheaper per unit of finished product. For example, one of the esters of PABA is priced at about $7.50 per pound. Being effective in a two per cent concentration, two pounds will be required for each hundred pounds of completed lotion or cream, totaling $15. A certain popular ester of salicylic acid is marketed at about $3.00 per pound. Ten per cent is the irreducible minimum necessary to provide comprehensive protection, or 10 pounds of screening material in each hundred pounds of finished product. The cost of the screen herein will be 10 times three dollars or $30. The $15.00 differential per hundred pounds of ready-for-market lotion in favor of the PABA ester is readily apparent, and in large scale operations, would accrue into formidable sums annually.

While repetitious, the writer would again call attention to the increased dermatologic safety that may be gained in the selection of a low concentration screen. In the illustration just given, two per cent of the PABA ester will perform as well as 10 per cent of the salicylic acid ester. The latter compound requires five times more chemical to be present on the skin than does the PABA ester to accomplish the same purpose. The advantage is unmistakable in view of the dermatologic credo, "the less foreign material on the skin, the better." Good business dictates that cost decisions should not be governed by price per pound but rather by net cost per unit of product. The suntan industry has failed to implement this reasoning since many of the screens in service today, if examined in the light of cost per finished unit, would be quickly replaced by a more efficient and thereby more economical compound.

Type of vehicle

The question of oily or greaseless bases has been reviewed but never fully resolved. The earliest sunburn preventives were oils and greases, reaching the peak of their popularity at about 1935. Since then sales of the greasy type suntans have declined until today approximately 90 per cent of the total sales are greaseless products. However the oily vehicles do seem to possess some appeal since their sales do enjoy cyclic resurgence. A few years ago the baby oils experienced a tidal-wave demand, eclipsing all other products, advertised or not. There was no visible motivation for this phenomenon. These were not sunburn preventives nor were there any but the mildest claims to such effect; in fact the basis of most baby oils is almost entirely mineral, some do contain a small amount of lanolin, the combination of which transmits ultra-violet radiation nearly 100 per cent. This ridiculous and mysterious popularity soon collapsed which is not difficult to understand. The sunbathing public bought and paid for immunity from excess insolation. This service was not and could not be provided by the baby oils. The consumer quickly registered anger and the baby oil boom was over. The foregoing is exemplary of the inconstant and alternating waves of public fancy. Ten years have elapsed since the demise of the baby oils. Today, a new series of oils and greasy creams, emanating from Florida, have again captured an appreciable portion of the suntan dollar. Whether this is another fad, or will retain a degree of permanence, will be determined by time.

Each type of base or vehicle, greasy or greaseless, is characterized by individual virtues and defects. Vege-

table oils, lanolin and derivatives, and least of all, mineral, provide emollient and lubricating effects. Although these dermatologic qualities are beneficial, especially beneath a blazing, actinically powerful sun, the oily products are not without a number of objectional features which greatly impairs their utility. Most people intensely dislike the greasy feel and appearance imparted by the greasy preparations. More important is the fact that oils and greases are easily displaced. Inevitable contact with blankets, beach chairs, beach clothing, etc., results in the practically complete removal of the protective coating by absorption by the objects involved. As for the affinity of oils and greases for beach sand, this proclivity is known to all and is most obnoxious. These favtors concertedly explain why the greaseless products dominate about 90 per cent of the total suntan market.

The greaseless vehicles too are endowed with valuable distinctions. The bases are usually hydro-alcoholic or aqueous solutions of the soluble cellulose derivatives. After application, complete dissipation of the vehicle takes place rapidly, depositing a thin film of the filter, with or without a plasticizer, depending upon the screen contained therein. Certain seemingly amorphous screens which do not require a plasticizer, are precipitated in a flexible, continuous film that defies detection and is dry to the touch and eye. In those cases where a plasticizer is necessary, the protective coating will be somewhat perceptible. The greaseless products possess another enormously important faculty—the residual screening film, after evaporation of the base, effectively resists displacement by contact with beach clothing, chairs, blankets, etc. Even beach sand will not remove an appreciable amount nor will it adhere to same. There is no unpleasant "feel," and the sunbather is not made conspicuous by a shiny oily or greasy skin. The old story of alcohol being drying is sheer nonsense so far as sun lotions are concerned. If a portion of the anatomy were soaked in 90 per cent alcohol, a withdrawal of lipoids from the skin would probably occur. But to say that the application of a 50 per cent hydro-alcoholic lotion, which is dissipated almost instantly by atmospheric and radiant heat, can dry the sky—such a claim has no foundation in fact.

It is readily apparent that each type is identified with virtues and liabilities. Consumer favor is extremely transitory and fixed habits are quickly renounced for a new fad. Therefore a demand for both types of products is assured, although as we have pointed out, the greaseless preparations constitute about 90 per cent of the suntan business and probably will continue to do so.

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